DOCUMENT RESUME

ED 129 037 EC 091 337

AUTHOR	Miley, James F., Comp.; And Others
TITLE	Promising Practices: Teaching the Disadvantaged Gifted.
INSTITUTION	National/State Leadership Training Inst. on the Gifted and Talented, Los Angeles, Calif.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Office for Gifted and Talented.
PUB DATE	Mar 75
NOTE	64p.
AVAILABLE FROM	Ventura County Superintendent of Schools, County Office Building, Ventura, California 93001 ($2.70)
EDRS PRICE	MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS	*Cultural Differences; *Disadvantaged Youth; *Economically Disadvantaged; *Educational Needs; Elementary Secondary Education; Ethnic Groups; Exceptional Child Education; *Gifted; Minority Groups; *Teaching Methods

ABSTRACT

Intended for teachers, the document offers 10 articles on educating the disadvantaged gifted student. Included are the following titles: "Four Promising Practices for Teaching Gifted Disadvantaged Students" (which describes a workshop with problem solving and creative expressive activities) by E. Paul Torrance; "Cultural Diversity and the Exceptional Child" with the "Asian Component" by H. Kitano, the "Black Component" by G. Smallwood and O. Taylor, the "Indian Component" by J. Kito and B. Love, and the "Spanish-speaking Component" by J. Aragon and L. Marquez; "Talented, But Timid?" (which deals with the gifted female student) by L. Runnels; "The Mathematically Precocious Female" by L. Fox; "The Culturally Different Gifted Child--the Dawning of His Day?" (which reviews definitions, identification procedures, program provisions, and available resources) by I. Sato; "Creativity and the Poverty Child" (which includes a list of insights gained from research on children from poverty cultures) by B. Mitchell; and "The Gifted and the Disadvantaged" (which discusses the need for development of identification procedures, programs, staff, an enriched learning environment, strategies for bilingual and multicultural education, appropriate guidance and other ancillary services, and financial resources) by A. Passow. (SBH)

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PROMISING PRACTICES: Teaching the Disadvantaged Gifted

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National/State Leadership Training Institute
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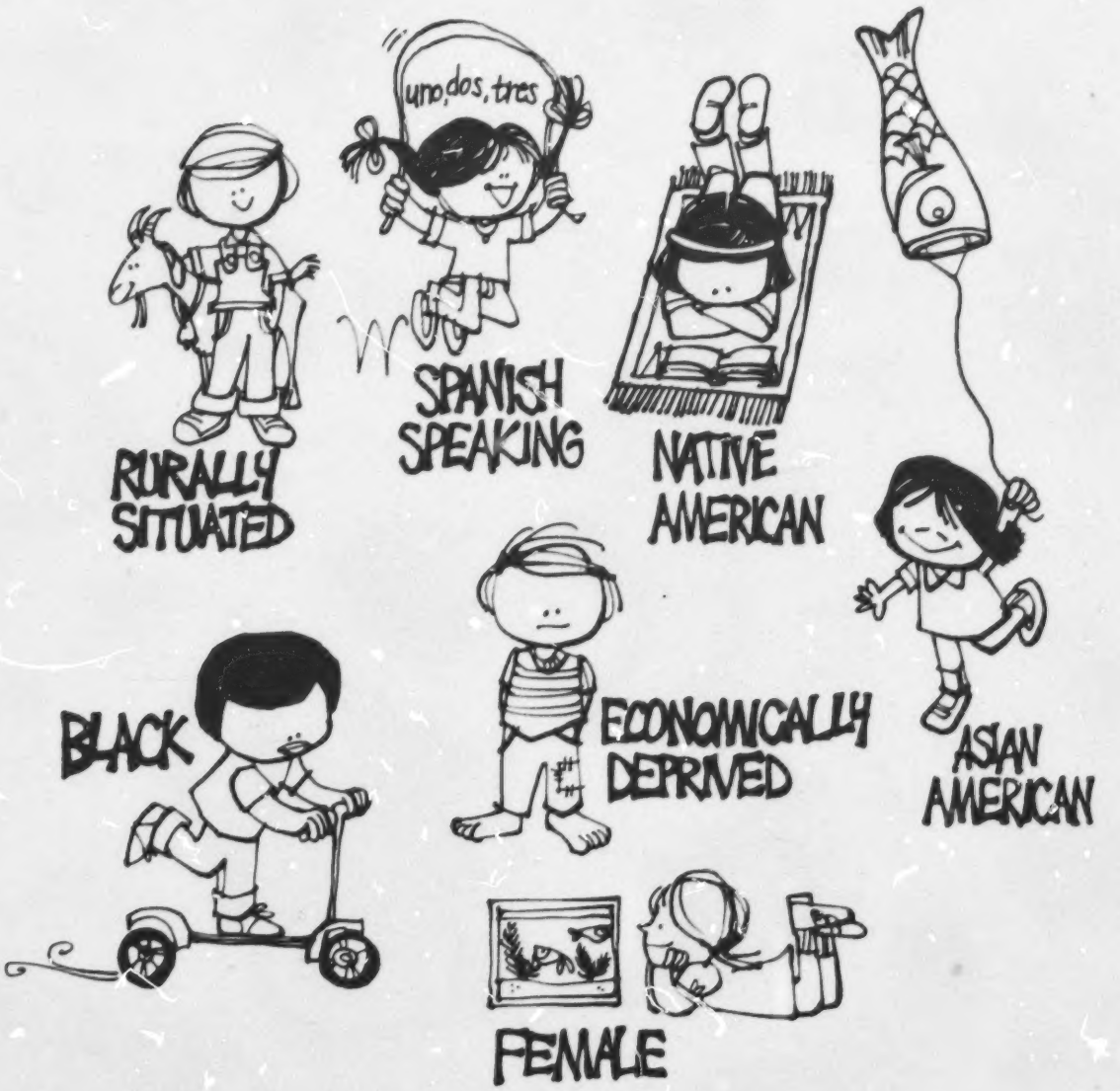
Published by Ventura County Superintendent of Schools
March, 1975

EC091337

Who are the disadvantaged?



FOREWORD

There are certain practices in use in special situations – teaching the disadvantaged gifted – that may be valuable to you. Specific problems face all teachers of the disadvantaged: Accentuating cultural strengths in programs, balancing the cognitive and affective domains, recognizing different human values and self-concepts, understanding and developing aspirations, exploring new teaching and learning styles, involving the community, and encouraging interest in such special programs.

Articles by others wrestling with these same problems may offer you new ideas and opportunities for dialogue and even suggest some appropriate action. ***Promising Practices – Teaching the Disadvantaged Gifted*** has been prepared primarily for distribution at the two National Teacher Institutes on Disadvantaged Gifted (Atlanta, April 4-6 and Los Angeles, May 16-18, 1975). It is intended to stimulate post-Institute reflection on how to meet special needs of disadvantaged gifted youth in special settings.

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FOUR PROMISING PRACTICES FOR TEACHING GIFTED DISADVANTAGED STUDENTS*

by E. Paul Torrance**

For quite a number of years now I have urged that we search for giftedness among disadvantaged students in terms of the characteristics encouraged by their own cultures and that educational programs for disadvantaged students be built upon their strengths rather than upon their deficits (Torrance, 1965, 1969, 1970, 1972, 1974a). This proposal has distressed some educators because they felt that this was a condescending attitude. I have never intended this proposal as condescending. My contention is that it pays greater respect to the strengths and values of the so-called disadvantaged cultures than do proposals and practices based upon the assumption that there is a superior culture and that its cultural characteristics must be emulated by everyone.

Unfortunately, there has been little chance to test the validity of my proposal on any large scale. However, there have been many encouraging little experiments here and there, including my own work with disadvantaged children in summer creativity workshops and in a day care center. I know of only one program of national scope that is based on the strengths rather than the deficits of disadvantaged students. I have reference to Project SEED (Special Elementary Education for the Disadvantaged developed by William Johntz, 1967). This is a national program in which professional mathematicians and scientists from major universities and research corporations teach abstract, conceptually-oriented mathematics to full-sized classes of disadvantaged elementary school children on a daily basis. The mathematics is presented through a Socratic group discovery format (Boehm, 1970). More recently the project has been extended into the high school years. The effectiveness of the program has been subjected to numerous external evaluations in a variety of sites. The following brief summary of one of these external evaluations appeared in the April 13, 1970, issue of ***Education U.S.A.,*** a weekly newsletter on education affairs:

> One of the nation's most innovative and controversial mathematics programs now has major statistical evidence to prove that it works. The program, Project SEED (Special Elementary Education for the Disadvantaged), brings professional mathematicians, even Ph.D.'s, into a classroom to teach abstract math to disadvantaged elementary students. The program's founder and director, William F. Johntz, a former high school math teacher in Berkeley, California, says young children can learn algebraic concepts usually reserved for high school and college students and love every minute of it. His beliefs are backed by a new study of 400 second-and fifth-grade California classes . . . .
>
> The study shows a significant improvement in the performance of SEED classes, says research director Robert P. Dilworth, a math professor at Caltech. Children in the SEED classes did ' much better ' on understanding and computing arithmetic than control classes and ' enormously better ' on understanding principles of algebra and geometry,

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* This paper draws heavily upon three different papers previously published in ***Gifted Child Quarterly*** and one published in ***Journal of Creative Behavior.***

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Dilworth says. They also scored a little higher on reading tests, contradicting critics who say students learn math at the expense of their other subjects . . . .

Johntz's project tried to succeed where other programs fail by increasing the self-image of disadvantaged students. Remedial programs reinforce a student's feelings of failure and inferiority, Johntz says. But he considers abstract math (not arithmetic) to be a pure, culture-free subject that allows all students to start with a fresh slate. And success in this field brings the students high status and confidence . . . .

Since 1970, this study has been replicated successfully in a variety of locations. Children participating in the program have demonstrated their skills before school boards and legislative bodies; they have taught college students, teachers, and younger children.

I wish that I could say that I have similar "hard" research evidence to support the validity of the four practices described in this paper as "promising practices for teaching gifted disadvantaged students." I have tested them sufficiently to have confidence in their promise, and the feedback of some of my students who are applying them is encouraging. I invite you to consider them, modify them, adapt them, or use them as a springboard for your own inventions.

A MIXTURE OF PROBLEM SOLVING AND CREATIVE EXPRESSIVE ACTIVITIES

The central core of our workshops for disadvantaged children has been activities that combine disciplined creative problem solving with creative expressive activities. The scientific base of the model we have devised comes from a dozen or so studies (Torrance, 1971, 1974a) which have shown that there are no statistically significant differences in performance on the ***Torrance Tests of Creative Thinking*** (1966, 1974b) due to race or socioeconomic status.

Our model, however, does not actually require measurement in the traditional sense whether by creativity, intelligence, or achievement tests. Rather, it requires careful and sensitive observation and evaluation in settings that provide built-in motivation and opportunities for creative thinking and expression. The approach to identification of talent is horizontal in nature rather than vertical or normative in the traditional psychometric sense. On the basis of our experiences and a great deal of related research we have identified the following creative positives of disadvantaged groups, characteristics that occur to a high degree and with high frequency among disadvantaged young people:

1. Ability to express feelings and emotions
2. Ability to improvise with commonplace materials
3. Articulation in role playing and storytelling
4. Enjoyment of and ability in art, drawing, painting, etc.
5. Enjoyment of and ability in creative movement, dramatics, dance, etc.
6. Enjoyment of and ability in music, rhythm, etc.
7. Expressiveness in speech
8. Fluency and flexibility in non-verbal media
9. Enjoyment of and skills in group learning, problem solving
10. Responsiveness to the concrete

11. Responsiveness to the kinesthetic
12. Expressiveness of gestures, "body language," etc.
13. Humor
14. Richness of imagery in informal language, creative writing, etc.
15. Originality of ideas in problem solving, brainstorming, etc.
16. Problem-centeredness
17. Emotional responsiveness
18. Quickness of warm-up.

In this paper we shall describe briefly the 1971 workshop as one example of how the creative positives of disadvantaged young people of elementary school age can be brought into play in a program that combines creative problem solving with expressive activities.

Participants and Leaders

Ninety-one young people were enrolled in the workshop and ranged in age from six to thirteen years. Fifty-nine of the enrollees were boys and 32 were girls; 51 were black and 40, white. Most of them came from large, low-income families in the vicinity of the city park in which the workshop was held. They were recruited through a brochure describing the workshop.

The workshop leaders were 47 mature students enrolled in the senior author's course on Learning Difficulties of Disadvantaged Children. Fifteen were male and 32, female; only 9 were black. Their fields of specialization included vocational and trade education, elementary education, English education, physical education, guidance and counseling, early childhood education, reading, exceptional children, art education, educational psychology, social studies education, speech and drama. Only two had not had prior teaching experience; one of these had been an occupational therapist and the other was an exceptionally able retired Air Force officer.

Setting and Curriculum

The workshop setting was a city park located close to the University of Georgia. This park serves a large number of economically disadvantaged young people, both black and white. The clubhouse is small, and the park has only sparse 19-year-old playground equipment. The grounds of the park constitute a virtual island bounded by the North Oconee River, Trail Creek, and railroad tracks. There are many varieties of trees, wild flowers, berries, grasses, bamboo, insects, wild animals (squirrels, chipmunks, rabbits, turtles, etc.), fish, and other water life. The irregularity of the terrain forms a large number of rather secluded spots where small learning groups may work. There are also several concrete tables with seats, and one of them has a shelter equipped with electrical outlets. There is a kitchen with minimal facilities for cooking and porches which were used for crafts, newspaper, carpentry, and puppetry groups. A footbridge across the creek gives a dramatic setting for storytelling, creative dramatics, and filming activities.

The nature of the setting facilitates movement from individual to two-person, small group (3 to 10), moderate-sized group (20 to 30), and large group (50 to 100) learning activities. The setting encourages the leaders to practice new teaching skills and use creative activities. The atmosphere is non-school-like, and appeals to many children who have developed strong aversions to school-like learning situations.

Each day's session lasted four hours and involved participation in large group, small group, and individual activities. Each day's session began with a large group activity, usually

a creative dramatics and problem solving session, a film made by participants, a dance contest, or the like. This was followed by moderate-sized groups in creative music and creative dance and groups in photography and crafts (six-and seven-year olds). After a juice break, the session shifted to small group activities in sculpture, painting, biology, dramatics, puppetry, crafts, frisbees, puzzles, and mysteries. After a second break, all of the participants worked in four-person groups under the supervision of an adult in brainstorming and creative problem solving training and practice. This was followed by another set of small group activities in sculpture, painting, creative writing, science, newspaper, carpentry, leadership, frisbees, hula hoops, singing, baking, and storytelling. The final session involved all workshoppers and leaders in discussing "the great things that happened today." The purpose of this final session was to encourage leaders in recognizing and acknowledging creative behavior and to make the young people aware of their own creative possibilities.

Basic Training in Creative Problem Solving

The basic training in creative problem solving was given during a 30-minute period each day but deliberate efforts were made to engage the workshoppers and leaders in creative problem solving in all of the activities of the workshop and in their homes. During the first two weeks, training was given in the rules of brainstorming and other component skills. Each session ended in contests among the four-person teams and prizes were awarded to the winning team in the 6-8 year division and the 9-13 year division. In abbreviated form, the problems were as follows:

1. Produce as many ideas as you can to help Giovanni protect himself and his people from the giant without killing him. (Given after the dramatized recording of Giovanni and the Giant, Cunnington and Torrance, 1965.)

2. Produce as many questions as you can to find out what is happening in the picture used for the Ask-and-Guess test of Form B of "Thinking Creatively with Words." (Each group was provided with a copy of the picture.)

3. Produce as many ideas as you can for improving a stuffed toy dog so that it will be more fun for children to play with. (Each group was provided with a stuffed toy dog.)

4. Produce as many ideas as you can about the things that might happen if water animals could live on land and land animals could live in the sea. (The total group was shown a large painting of water animals on land and land animals in the sea.)

5. Produce as many ideas as you can about the things that might happen if it were against the law to sing.

6. Produce as many ideas as you can for unusual uses of junk automobiles.

7. Produce as many ideas as you can for unusual uses of "dead" or broken hula hoops. (The large group was shown a broken hula hoop.)

8. Produce as many ideas as you can for unusual uses of worn-out frisbees. (The large group was shown well-used frisbees from those used by the workshop.)

On most days there were 14 four-person groups, and these groups moved from an average of 38 ideas on the first day to 98 on the eighth day for 10 minutes of brainstorming.

At the beginning of the last week, each team began a successive series of sessions dealing with one problem, the improvement of the park as a place for learning and play.

On the first day, the period was devoted to the production of ideas for improving the park. On the second day, help was given by the adult leaders in developing criteria for evaluating ideas and then evaluating the most promising ideas to choose one for implementation.

On the third day, ideas were brainstormed for implementing and selling the idea that had been chosen. On the final day, each group made a poster to promote the idea its members had chosen for implementation. An unsuccessful attempt was made to obtain funds for providing some part-time leadership in working with the teams to get community action to implement some of the ideas chosen by the teams.

Applications of CPS in Activities

In the beginning, the use of creative problem solving was not a part of the teaching repertoire of very many of the leaders. However, as we entered the final week almost all of them were using the process in individual and small group activities regardless of their nature. Only a few examples can be cited here.

Creative Writing

From the selection of topics to the creation of surprising endings, brainstorming and creative problem solving were used by the creative writing groups. Perhaps its most systematic use was in the composition of cinquains (five-line poems). After the selection of a title, the author brainstormed words to describe the topic (adjectives); then, words to tell what the topic does (verbs); and finally, words to tell about the feelings of the topic (adverbs). The cinquain was composed by selecting the two words that best described the topic for the second line, the three words that tell best what the topic does for the third line, and the four words that best describe the feelings of the topic for the fourth line. Finally, words were brainstormed and one word selected for synthesizing the entire poem or catching its essence.

Creative Movement

In one session of the creative movement activity, the participants explored various kinds of feelings through movement and exploration of body awareness and spatial awareness to various rhythms. The objective of the session was to enable the participant to create new patterns of movement for the different body parts to various rhythms. Each participant was asked to select a rhythm that he liked and move his head to the rhythm in as many ways as possible, move his shoulders to the rhythm in as many ways as possible, move his arms to the rhythm in as many ways as possible, move his hips to the rhythm in as many ways as possible, etc. Participants were then asked to combine these different movements in response to the music and continue to add different movements using the different body parts. They were asked then to vary movements to the kind of feeling they wanted to express (happy, sad, lonely, angry, etc.)

In the dance contest held each Friday, a similar approach was encouraged in the creation of routines. The judges attempted to reward originality as well as skill, aesthetics, and the like.

Sculpture

The initial activity of one of the sculpture groups was to canvass the entire park area for broken glass. In the small group, the leader then led them in explorations of all of the possible ways of using the glass in their sculpture. Members demonstrated to one another how the broken pieces of glass could be combined with other materials to make sculptures. On subsequent days, group members made beautiful sculptures by placing the pieces of broken glass in frames made by coat hangers and wire, making three-dimensional pictures in small cardboard boxes with broken pieces of glass and Elmer's glue, and making objects by arranging and mounting pieces of glass on blocks of wood.

Painting

During the last week of the workshop, the two painting groups made a large mural which is now on display in the College of Education of the University of Georgia and has attracted a great deal of attention and praise. The following excerpts from the account by one of the leaders shows how creative problem solving was used again and again in this activity:

> 'What could we use for our theme? What could each person contribute to our group painting?' These questions started the children talking about their group project and producing ideas for it . . . . It was decided that Dudley Park would be our best subject, and as they brainstormed their ideas they became increasingly enthusiastic about the mural.
>
> In preparation for our mural work, the children took a walk and looked around Dudley Park. Returning, we talked about the Park, what it meant to them and the things they did while they were there. We made a long list of things that might be in the mural. Next the children began drawing their ideas of what they would like to put in the mural.
>
> After the first drawings were completed, we hung them up and discussed what they liked about them and how they could be put together in a single painting. After deciding what each person wanted to contribute, we began work on the actual drawing. The panels had been prepared earlier by several children and were dry by our group time. We divided our group, and while one subgroup drew on the mural itself, the other subgroup began to mix the colors for painting. Through their mixing they achieved a variety of exciting colors.

A task of this complexity confronts the leaders with many problems that challenge the best that the creative problem solving process can yield. Once disadvantaged young people are "turned on" to creative thinking, it comes forth at every point. This is illustrated in the following evaluative comment by one of the leaders concerning one of the boys in the painting group:

> My 'problem' with Joseph (if it can be called a problem) was that he thought of so many visual approaches to our mural that I was beginning to think that we should never get down to the actual work of doing it. He sees things from different viewpoints quite easily . . . .

There were also the inescapable problems of getting so diverse a group (different ages, races, socioeconomic backgrounds, and sexes) to synthesize their efforts into a single production. The following evaluative summary by one of the leaders reflects some of this process:

> . . . They were possessive at first of 'their part' in the mural and didn't want anyone to 'mess it up.' But, as they worked together and one problem after the other was solved, they became more tolerant of the views and contributions of others and now have begun to rely on each other more. This has created a greater sense of teamwork and they shared willingly and offered advice and materials more readily than in any of our earlier small group activities. They shared and built upon the ideas of one another.

Baking

Only a sample can be given here of the ways that creative problem solving was used in the small group activities. One of the least likely groups, the baking group, applied the process again and again in coping with its problems and making decisions. For example, one day

the group went into the park and gathered fresh, ripe blackberries. They then brainstormed all of the things that they might make with the berries – pie, cake, biscuits, wine, juice, tarts, cookies, candy, jelly, jam, sauce, crullers, waffles, pancakes, etc. When they applied their criteria of cost, time, availability of materials, and the like, they chose to make sheet cakes so that they could serve treats to each workshopper and leader at the end of the morning's program. Thus, it became one of the "great things that happened today." On another occasion, the baking group picked blackberries and made what they called "Blackberry Surprise," a concoction using biscuit dough. Again, the group was able to serve everyone a "Surprise" at the end of the workshop day.

EVALUATION

No attempt was made to evaluate outcomes of the workshop in terms of traditional tests of reading, arithmetic, language development, science, social studies, and the like. It was plain to us that such gains were occurring. However, it seemed more important that the children use this precious time to paint, act, write, dance, do science experiments, solve problems and puzzles, and the like than to take tests that would document and establish the occurrence of such growth. Furthermore, we were far more interested in evaluating what kinds of people these young people were becoming, how involved they were becoming in their learning, how well they were able to produce and consider alternatives, how well they were able to work together and make decisions.

We did administer alternative forms of the ***Torrance Tests of Creative Thinking*** at the beginning and end of the workshop and documented statistically significant gains in ability to produce original ideas. What was more important to us, however, is the evidence the leaders were able to cite to show that the children had become increasingly more involved in their learning; they increasingly gave expression to their innate sense of wonder and curiosity; they increasingly gave vent to their desires to find out things; they increasingly showed ability to persist with a task; they learned how better to withstand failure and start over, if necessary, to achieve a desired goal; they became more sensitive and humane in their responses to others; they developed more positive attitudes about learning; and they began considering a greater variety of alternative solutions to problems.

To gain acceptance of this model for combining creative problem solving with creative expressive activities in the education of disadvantaged young people, it will be necessary to demonstrate its effectiveness over longer periods of time, under more conventional conditions, and with more conventional methods of assessment. Support for testing such a model is not likely to come soon or easily. Meanwhile, summer programs such as the one described here can be conducted outside of established educational programs.

INTERSCHOLASTIC BRAINSTORMING

The second "promising practice" grew out of our 1973 summer creativity workshop (Torrance, 1974c). The proposal is to promote interscholastic brainstorming and creative problem solving competition to give creatively gifted students, especially disadvantaged ones, a better chance to enter the reward structure of schools. Science fairs have for some time given such students some chance for rewards. Many of these competitions, however, do not stress creativity, and there is no chance for team performance. Primarily, science fairs stress individual rather than school achievement. Furthermore, the efforts of many adults may go into a child's entry in a science fair. Affluent children have available to them more of these resources. Strangely, however, it is the disadvantaged child who excels in such competition who comes under suspicion for using adult resources rather than

affluent children. Interscholastic brainstorming and creative problem solving would be more like an athletic performance -- a performance of teams at a given time and place.

One of the virtues of interscholastic competition in brainstorming and creative problem solving is that teams from all grade levels could compete. It is also a type of academic competition that would give a chance to disadvantaged and culturally different children. In fact, it may prove that disadvantaged and culturally different children will be especially outstanding in this type of competition. At least it proved to be so in the first experience that I had with it.

In our 1973 workshop, we enrolled 75 children, ranging in age from 6 to 13 years, approximately 60% black and 40% white. All of them came from economically disadvantaged homes and most of them qualified for participation in the free lunch program administered by the local recreation department in the park where the workshop was held. There was no registration fee for the workshop, and no charges were made for materials used in the workshop. The program for the gifted enrolled 320 children who had been screened from grades one through eight of the Clarke County Public Schools on the basis of achievement, intelligence test, and figural creativity test data. To operate the program it was necessary to charge tuition, although a few scholarships were offered to disadvantaged children. It was also necessary for parents to provide transportation for their children. As a consequence, most of the children enrolled in the gifted program were rather advantaged white children.

In the creativity workshop, a 30-minute period each day was devoted to brainstorming and creative problem solving in teams of two. All children from age 6 through 13 years participated. While brainstorming and creative problem solving was a part of the curriculum in the gifted program, it was not given systematic attention. Two practice sessions were held, however, during the earlier part of the week in which the competition occurred.

Each program was represented by ten two-person teams, and an adult served as recorder for each team. The contest consisted of two rounds or two sessions of 10 minutes each of "brainstorming." The first task called for the teams to produce ideas for using junk automobiles, and the second challenged them to think of ways of improving school playgrounds so that children could have more fun and learn more on them. Thirteen of the disadvantaged children were black and 7 were white; all of the gifted children were white.

The mean number of ideas produced by the teams of disadvantaged children was 202.4 compared with 115.1 for the gifted children, the difference in means being significant at the .001 level ($t=4.9472$). One might argue that this difference in favor of the disadvantaged children was due to the fact that they had had almost daily practice for 10 days, whereas the gifted children had had such practice on only two days. An examination of the records of the first two days of practice of the disadvantaged children on similar problems shows that the top 10 teams had a mean of 143.5 without benefit of prior practice. If this mean is compared with the contest mean of the gifted children, we still find a difference significant at better than the .05 level of confidence ($t=2.3652$).

When the ideas were evaluated for originality, similar results were obtained. The mean originality score of the disadvantaged groups was 43.4 and that of the gifted groups was 25.4. This difference was significant at about the five percent level of confidence ($t=2.00$).

An examination of the team records made by the adult observers yielded interesting insights concerning differences in the behavior of the two groups. The teams from the disadvantaged group consistently showed ability to hitchhike on each other's ideas and to be sparked by one another, while such behavior rarely occurred in the teams of gifted children. For example, one of the disadvantaged groups presented the following series of responses to the junk auto problem:

Use as a play car

Play house in it

Play marriage

Play dating

Pretend going to Mexico

Pretend going to New Orleans

Etc.

Another group produced the following series in response to the same problem:

Live in it

Camp in it

Use it for outdoor bathroom

Hide in it

Hide things in it

Store clothes in it

Let dog live in it

Let cat live in it

Etc.

The disadvantaged children showed more intimate knowledge concerning the parts of junk automobiles. The more affluent gifted children concerned themselves primarily with the external, obvious parts of junk automobiles such as windows, doors, steering wheel, seats, hub caps, etc. The disadvantaged children, however, made much more use of the inner working parts such as the spark plugs, piston rods, carburetor, wiring, axle, etc. Some groups systematically named the parts and then brainstormed uses for each part. For example, one group brainstormed the following uses for the rug:

door mat

pants

shirts

vest

watch bands

sandals

shoes.

For spark plugs, they listed:

earrings

bracelet

necklace

checker pieces

chess pieces

sculpture.

For the wiring, they listed:

love beads

wire decorations
wire sculpture
hang basket
basket handles
granny glasses
etc.

Most commonly, the affluent gifted children tended to use the parts of the junk autos without transformations, whereas the disadvantaged children transformed the parts into something other than their usual use. For example, the affluent gifted children would place the steering wheel on something else like a motor scooter, the blinkers on a bike, the air conditioner in a doll house, the exhaust pipe on hair dryer, and the like. On the other hand, the disadvantaged children would make music instruments, clothing, toys, games, etc. out of various parts.

The contrasting values of these two groups of children show even more clearly in the playground improvement problem than in the junk auto problem. The composite playground of the affluent gifted children would be a gigantic shopping center covered completely by a dome and air conditioned. This playground would contain restaurants, department stores, clothing stores, grocery stores, gift shops, and "get anything machine." It would also contain dentist offices, doctors' offices, and a planetarium. The composite playground of the disadvantaged children might contain a hot dog stand, a coke machine, and a Dr. Pepper machine, but not a shopping center. It would contain trees, flowers, animals, streams, a lake, and facilities for all kinds of sports and games. It would also contain areas for playing music, dancing, dramatics, painting, sculpture, crafts, playing checkers, and picnicking. The playground of the gifted children would contain a physical education teacher but that of the disadvantaged children would contain a variety of adults who could halp them make use of these varied facilities and interact with them.

Conclusion

From this initial exploration, interscholastic brainstorming and creative problem solving competition seems to offer promise as a vehicle through which creatively gifted disadvantaged children may bring honor and recognition to their schools and to themselves. Such competition can be adapted for use at all educational levels. There seems to be no sex, racial, or socio-economic bias. There are also indications that young people develop important skills and acquire new and useful information through their team experiences. Furthermore, the solutions that young people produce through such activities may be useful in solving educational and social problems. Who knows?

DISADVANTAGED CHILDREN AS TEACHERS OF TEACHERS

The third "promising practice" for gifted disadvantaged children also emerged from the 1973 summer creativity workshop (Torrance, 1973). The teachers in our summer creativity workshops for disadvantaged children had always commented that the children taught them more than they taught the children. I had always thought that they were talking about those indirect learnings that all good teachers experience. During the summer of 1973, however, I observed frequently that children were doing a great deal of direct teaching, although the teachers rarely reported these experiences to me. I suppose that this oversight occurred because they were cast in roles as teachers, and this was contrary to role expectations of teachers. Thus, I decided to ask these teachers outright what their students had taught them, both directly and indirectly, and then describe in detail one experience in which they had been taught by one of their students in the workshop.

Direct Teaching

I asked the workshop teachers to list on one page the things that their students had taught them directly and on another page the things that they had been taught indirectly. They reported an average of 8.75 direct and 0.72 indirect learnings. Every teacher reported some of both types of experiences. The following are examples of the direct learnings reported by these 55 teachers:

How to make a slingshot

How to tie a half hitch knot

How to climb a tree (I had always been afraid of heights)

How to explore a cave

How to draw a profile of a man (I had never been able to do this)

How to do a cannonball dive off a diving board

How to make a fishing pole from a stick, piece of nylon cord, safety pin, and small piece of metal

How to hitchhike in brainstorming

The geography of Dudley Park (where the workshop was held)

How and where to find fish bait

How to play checkers with some original rules

Precisely what to do during a tornado

How to crochet

"All" about berries, birds, etc.

How to skip rocks

How to use a peach for fish bait

How to make a game of Frisbees

How to do various kinds of dances

New way to do a cartwheel

How to play "Steal the Bacon"

How to carve with a knife

How to ford a stream

How to make funny noises with my tongue

How to "corn-row" hair

How to identify various kinds of fish, wild flowers, trees, insects, etc.'

History of the geographical area.

Just as the things that gifted advantaged children teach their teachers and classmates (computer programming, medical specialties, binary numbers, etc.) are things that are valued in their culture, the things that these disadvantaged children taught their teachers are also the things that are valued in their culture. As teachers they are no less talented than gifted advantaged children and perhaps more so as their culture provides them more early practice teaching than does the affluent culture.

Indirect Learnings

Many of the indirect learnings are things that we had tried to teach in the classroom during the two weeks prior to the workshop or that we had hoped that they would learn through reading. We realized of course that there is a big difference between learning about something and "really" learning it. This is especially true of the efforts of middle class teachers to acquire the special understandings and skills necessary for the successful teaching of disadvantaged children. The following are examples of the indirect learnings reported by teachers in the 1973 Creativity Workshop:

How to use non-verbal cues and to "read body English"

How to relax more and enjoy my physical and human surroundings

How to improvise and ad lib in strange situations

How to understand Black dialect

How to enjoy a library more fully

How to listen more and talk less

How to get "totally" involved

Appreciation of Black culture and heritage

That all children thrive on one-to-one interaction

That disadvantaged children have deep ideas though they may not be expressed in correct grammar

That disadvantaged children excel in brainstorming and problem solving

That approval and reinforcement can not be deleted at times

That it's not easy to make it on your own without the authority label (principal), but it's more rewarding

That traditional direct approaches to controlling undesirable behavior are miserable failures with some disadvantaged children

That each person has his own "way" and needs to have a chance to use it

How cruel racial prejudice can be

That fear is a verbal retarder

How sophisticated the creativity of a six-year-old can be

How to tell when a child is not feeling well

That disadvantaged children want to be taught, can be taught, and will work willingly and hard at difficult mental tasks

How to be looser, more spontaneous, more demonstrative

That disadvantaged children like poetry and can write poetry

Not to expect too little

Not to try to fool them

Always to have ready a second or third plan in case one does not work

How to admit ignorance about something that someone thinks I should know

That the teacher's goals may not be the student's goals.

Teaching Examples

Some of the teaching experiences reported might even be classed as psychotherapy – experiences which helped the teacher overcome a life-long fear or prejudice. The following quotation from one report illustrates such a result:

> I'm afraid of heights and have been all my life. One afternoon Jack, Jackie, Julius, Carl, and I were exploring the roads behind Village Apartments. We came to the giant treehouse and observation tower. All wanted to explore it. I froze. I admitted being afraid and the four of them began to coax me up the ladder. We reached the first level and my knees were so weak that I could barely stand up.
>
> Jackie said, ' See you can do it. There's nothing to be scared of.' Jack echoed, ' You're half way there. Take my hand and I'll pull you up and Jackie, you push. Carl, you climb on up to help pull.' I was panicking. I didn't know what to do. I closed my eyes but they began to urge me on. Finally after being coaxed for ten minutes I started up the second ladder. I was so scared when I reached the top I was sure I would faint and be killed.
>
> I survived and as we sat around on the observation ledge I found myself enjoying the experience. The children told me stories about how one time they were afraid but that it was ' silly.' We all laughed and joked and I really began to loosen up, I was still scared but it was bearable fear.
>
> As the children pointed out the river we were overlooking, the cemetery, the other giant trees, the birds, the dogs below on the ground, the sky through the leaves, the swing below, and all the million and one beauties of nature, I reflected on my childhood and for the first time really realized just how silly it had been to be afraid of heights and just how much of beauty I had missed from the ground. I had grown up looking through the trees, really a narrow perspective.

Some of the child teaching episodes described by the adult teachers revealed that some disadvantaged children have quite sophisticated teaching skills and strategies. A skilled educational psychologist could hardly do better than 11-year old Tami in the following report by one teacher:

> . . . What if a child teaches us something and unknowingly includes the things we try so hard to make ourselves do, such as heightening anticipation, encountering the unexpected, and so on? . . . Needless to say, when Tami offered to show me some crochet stitches, my anticipation was already considerably heightened. Tami and I both enjoy this type of work, and here was my chance to learn something new.
>
> Tami brought her crochet hook on Monday, and instead of knitting, she began to show me the elementary, she assured me, chain stitch. I could make the loops all right, but when it came to pulling the crochet hook through the loops, my efforts sent Tami into great laughter. I think that perhaps it comes as a shock to school-aged people when the teacher can't do something right away. Tami encountered my unexpected clumsiness with a great deal of patience and reassurance – ' I just know you'll get it this time, Beth ' – and I did begin to improve.

Tuesday was the day, though. Tami brought a crocheted 'book worm' to show me. This little thing can be smoothed flat to mark a place in a book, or it can be curled up to look as much like a worm as yarn possibly can. Might one call this 'deepening expectations'? Tami, after being satisfied that I had mastered the chain stitch, set me to work on the book worm, with the understanding that I could work on it more before Thursday. Tami, I found, is a firm teacher. She expects me to apply myself to crotcheting just as she applied herself to knitting. And I find I wouldn't dare let her down.

As for going 'beyond the lesson,' Tami told me about another stitch that she wants to teach me on Thursday – a stitch used to crochet hats and scarves. She explained that the stitch is more difficult but assured me that if I would have the book worm done by Thursday, she would have no trouble teaching me the new stitch. Again, I know what she expects me to do, and I will do it. This has been something of an insight for me with regard to the ways in which a teacher's sureness of the student affects the student.

Tami was quick to praise me when I got the stitches right, and she corrected my work with confidence so that I would get it right. Of course, one may say that a child would naturally assume that an adult would be able to learn that which was being taught, but in this particular case my pulling that crochet hook through the loops was plain pitiful. The hook catches on things and is really quite frustrating – makes those big knitting needles a breeze. Tami remained cheerful, however, and I can truthfully say that my attempts might have exasperated a less determined and patient teacher . . . . Being taught has certainly made me pay more careful attention than ever, and even more important, it has helped me know Tami in several new and exciting ways.

Conclusion

What I am proposing is that instead of seething and/or becoming hostile when threatened by the superior knowledge or skills of a gifted disadvantaged student that teachers give such a student a chance to teach those things that he knows so expertly. Just as the teacher has had opportunities to learn certain things in growing up that disadvantaged children have not had a chance to learn, the disadvantaged student has had a chance to learn many things that their teachers have never had a chance to learn. Or better, I would like to see teachers deliberately become aware of and acknowledge the special expertise of gifted disadvantaged students and use their expertness constructively. Certainly a teacher who wants to understand what teaching strategies are successful in teaching disadvantaged children can discover this from observing gifted disadvantaged children demonstrate the strategies that have been successful in their lives.

STUDYING THE FUTURE

It is widely believed that disadvantaged children are not interested in the future and are not easily motivated to learn about the future. My suspicion is that this belief has arisen out of the past histories of disadvantaged groups and from the methods of instruction that have been used in teaching future studies. I would suspect that the methods have been rather formal and verbal and that the methods of instruction rather than the subject matter has "turned off" disadvantaged students. The world is changing more rapidly for certain

disadvantaged groups (such as poor blacks in the Southeast) than for more affluent groups. Thus, future studies become critically important for disadvantaged gifted students.

I have proposed (Torrance, 1974c) that future studies employ methods especially suited to the strengths of disadvantaged children (i.e., role playing, sociodrama, brainstorming, creative problem solving, small group methods, dramatics, dance, art, music, and the like).

Sociodramatic Play

Sociodramatic play is the young preprimary child's natural way of studying the future. Here again, some studies (Smilansky, 1968; Rosen, 1974) indicate that many disadvantaged children do not engage in spontaneous sociodramatic play as do more affluent children. Such studies, however, indicate that disadvantaged children learn sociodramatic play quite readily and excel in it. In day care centers for disadvantaged children I have observed no lack of interest and skill in sociodramatic play.

Two- and three-year-olds derive a great deal of satisfaction and excitement from playing mother and father and other adult family roles. Two or three years later these same children seem to take these roles for granted and though they still make use of them, it is not with the same excitement. The child's social world is expanding and so is his concept of the future. It is in such roles as the policeman, the mailman, the taxicab driver, batman, superman, and the like that the four- to six-year-olds get their thrills in play.

Quite a number of years ago, I (Torrance, 1949) suggested that this kind of imaginative role playing might be used as a vocational guidance technique all of the way from preprimary levels to professional schools and employment and placement agencies. With children and young people, I suggested that experimentation with roles outside of the community might be used to enlarge vocational horizons. Now, I would add to these uses experimentation with future jobs that are only emerging now or have not yet emerged. This suggests the first of the special methods I would like to propose for helping gifted children study the future, future projection sociodrama.

Future Projection Sociodrama

Moreno (1969), Yablonsky (1974), and others have described the use of future projection in psychodrama and the technique lends itself readily to sociodrama and creative problem solving. In psychodrama this method involves having a person act out, with the help of supporting actors called auxiliary egos and a group, a meaningful situation in which he expects to act in the future. In sociodrama, a class or other group would similarly explore a future situation of a type that the members are likely to be involved in. The effectiveness of this procedure in sociodrama, as in psychodrama, depends upon the significance and importance of the situation for the group and the extent to which they are able to project themselves into the future. An intense, effective warm-up is important. As many particulars and specifics of the situation as possible should be emphasized in the warm-up. In other words the future should be made as real as possible.

The production of a sociodrama using future projections should follow the problem solving model described by Torrance and Myers (1970). The following steps should be followed as closely as possible:

1. Defining the problem. This involves discussing the important facts and identifying the difficulties and conflicts.

2. Establishing a Situation (Conflict). This involves an effort to identify the most important or central conflict of the problem. More than one conflict might be studied one at a time, however.

3. Casting Characters (Protagonists). The roles should be played as much as possible by group members who can identify with the roles. In some instances, several members of a group may play a particular role.

4. Briefing and Warming-Up Actors and Audience. The actors should be given a few minutes to plan the setting and agree upon a direction. During this time, the leader should warm up the audience to their roles. The actors then establish their role identities more clearly and describe the setting.

5. Acting Out the Situation. The action may be a single scene or a series of scenes and may last from a few seconds to 15 or so minutes. A variety of production techniques (soliloquy, role reversal, mirror, double ego, multiple double ego, etc.) may be used.

6. Cutting the Action. The director stops the action whenever the actors fall hopelessly out of role, whenever an episode comes to a conclusion, or whenever he sees a chance to stimulate thinking at a deeper level of creativity.

7. Discussing and Analyzing the Situation and Behavior. Both the actors and audience discuss their feelings, new insights, new hypotheses, possible solutions, etc.

8. Making Plans for Further Testing of Ideas for New Behavior. This involves the identification of the alternative solutions produced by the actors and audience, the evaluation of these alternatives, and the decision concerning further testing.

The future problems chosen for study should stem from the concerns of group members and course content. Insofar as possible, the problems should be of genuine concern to all members of the group. The following are examples of some problems that might be studied through future projection sociodrama:

Proposed legislation to guarantee an annual wage of $7,000 to all families

Agitation to destroy all large computer installations

Plans to institute a 32-hour work week in all businesses, industries, and government agencies

Legalization of marijuana

Establishment of an international police force

Automobiles barred from large cities.

In a sociodrama, many dimensions of a future problem will emerge which the group would not otherwise consider on the thought level. It also permits the group to go beyond the thought level and to articulate feelings, anxieties, and fears. Members of the group can be prepared for many different possible alternative courses of action.

Draw It, Dance It, Sing It

Gifted disadvantaged students can also go beyond the thought level and see new aspects of a future problem by elaborating upon it through drawings and other visual representations, creative movement, song, music, and the like. All of these techniques make use of special strengths of disadvantaged students.

A number of the curriculum materials that have been developed for facilitating creative thinking makes use of the techniques. For example, in the ImagiCraft materials (Cunnington & Torrance, 1965) the exercise that goes along with the Robert Goddard Story ***(Trailblazer to the Stars)*** is designed to motivate just such an activity. In the enactment and narration of the Goddard story the point is made that Goddard from the time he was a young teenager believed that interplanetary travel was possible. Thus, the exercise involves

students in an imaginary interplanetary trip to explore a new planet. Appropriate sound effects, narration, and dramatizations are used to warm up the participants. Students are then asked to explore the planet imaginatively, write a story about their explorations, and finally draw and paint a picture about a scene in the story.

This kind of study of the future seems important because it has almost always been our artists and storytellers who have prepared us for the future.

Creative Reading

Creative reading provides a variety of ways through which gifted disadvantaged students can study the future. Some of the basic readers now include stories and poems about future developments. These can be read with imagination and then elaborated through drawing, creative movement, and other means. Readers can also be motivated to go beyond the poem or story and speculate about future events. For example, in ***With Skies and Wings*** (Clymer and Wulfing, 1969, p. 147), Claudia Lewis' "Three Skies" provides just such an opportunity. The poem describes the three skies above our world and ends:

> Break through the black –
> Who knows
> To what fourth sky,
> On what flight?

The possible nature of this fourth sky provides a basis for real speculation.

Most of the suggested exercises and studies in this reading series, however, are less remote and more probable. The following example from the skills handbook for ***To Turn a Stone*** (Clymer and Wardelberg, 1971, p. 152) is more typical:

> Suppose that the ecological balance of the country was so threatened that a law was passed banning the use of wood. Pretend that you are a designer for a firm which makes wooden rowboats, sailboats . . . . . Molded plastic has been used by competing firms, but your company is anxious to come up with a totally new idea.
>
> First of all, make a list of everything you know, other than wood, which would float.
>
> Select one or more of the materials and figure out how you might build a small boat out of it. Draw a diagram of the boat, showing the materials used and your method of construction.

Some of the science fiction writers and futurists are now turning their attention to books for children and young people. Gifted disadvantaged students should find these quite appealing. For example, Isaac Asimov's ***The Best New Thing*** (1971) is a delightful and provocative story about some children who were reared in a little world far out in space. It describes their trip to the earth and their first encounter with gravity. They thought that the best new thing was to roll down a hill because they had never before experienced this joy. It would be exciting to see what a group of gifted students could do with a story such as this. Writing stories of the future should also motivate gifted disadvantaged students to examine aspects of future problems that they would not otherwise consider.

INTERSCHOLASTIC FUTURE-ORIENTED PROBLEM SOLVING

Interscholastic future-oriented problem solving is an extension of interscholastic brainstorming proposed in the preceding section of this paper. Competing teams are involved in all phases of the creative problem solving process from identifying problems and challenges

to preparing to put ideas into use (Parnes, 1967). In those Phases of the creative problem solving process where the production of alternatives is involved, performances are evaluated in terms of the number of appropriate responses reported and the originality of these responses. Where the evaluation of ideas and decisions are involved, performances are judged on the basis of adequacy of criteria and skill in applying the criteria to make decisions.

Each team records its own responses. Teams of two, three, or four usually work best. One member of the team may record the responses. However, it is usually best for all members of the team to record their ideas but it is essential that they communicate their ideas to one another to avoid duplication and to be sparked by one another's ideas. The best and most original ideas are likely to occur through this hitchhiking process and combination of ideas produced by two or more members of the team. Competition may be among teams within a particular school, or among schools within a county, region, or state.

The following is an example of a problem that might be used in such competition and was adapted from one in ***Future,*** a simulation model game for forecasting and planning the future, published by the Kaiser Aluminum and Chemical Corporation (Helmer, Gordon, and Goldschmidt, 1966):

> Worsening traffic conditions in cities, combined with increasing scarcity of building space, may well lead to the wide use, not only of high rise buildings, but buildings used for apartments as well as commercial purposes. This would permit people to live, work, and shop in the same buildings, and there also find services such as doctors, barber shops, theaters, laundries, etc. What problems might be caused by such a trend? List as many problems as you can. What is the real problem—the most important problem? State this problem for creative attack. Now brainstorm possible solutions to this problem as stated, following the basic rules of brainstorming (Osborn, 1963). List as many alternatives as you can. Now formulate criteria for evaluating your alternatives and apply these criteria to 10 of your most promising solutions and select the best one for implementation. Now that you have selected your most promising solution for implementation, how might motivation to implement this solution be aroused? Think of as many ways as possible. Formulate criteria for evaluating your proposed solutions and then apply them to 10 of your best alternatives and select the most promising ones. Finally, work out a plan for implementing your best solution and motivating others to cooperate.

Conclusion

I have described only a few of the methods that are emerging for helping disadvantaged gifted children study the future. These methods are especially appealing to disadvantaged students because they challenge and stretch their minds and imaginations. Such solutions in the future and motivate important kinds of learning.

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CULTURAL DIVERSITY AND THE EXCEPTIONAL CHILD*

Asian Component

by Harry Kitano**

Rather than focus on language in the discussion, the instructor for the Asian group, Dr. Harry Kitano, professor of social welfare and sociology at UCLA, decided it would be more practical and appropriate to discuss some of the sociological and philosophical differences within the Asian cultures. Kitano cautioned that it is difficult to generalize when referring to the many different Asian cultures.

> I hope this meeting will be valuable to you in helping you to understand the Asian. When I say Asian, I hope it's not such a broad generalization that it becomes meaningless. Actually, the various Asian groups are very diverse. Historically, they have always fought each other. The generalizations that are made here should be taken within this context.

The Asian community in this country finds itself in what Kitano calls a middle-man position. The middle-man minority in a power structure is in a peculiar position. He is above the masses, but he is rarely part of the elite. And he knows that by maintaining ethnic cohesiveness, an ethnic language, and an ethnic style, he is also maintaining his middle-man position.

Part of an Asian's proper socialization is learning his place within a social system. He knows that if he does anything that disturbs traditional patterns, he runs the risk of being alienated from his own ethnic group. For this reason, the Asian doesn't do anything that would make him stand out from the group—such as wearing loud clothes or driving a fancy car. The Asian is thus encouraged by his social structure to become invisible.

The Asian culture utilizes a much more indirect or subtle means of communication than we usually find here in this country. In an Anglo home, for example, if a child is doing something he is not supposed to be doing, the parent is usually direct and says, "Stop that right now." But in the Asian home, the parent is much more indirect. He says, "Listen, wouldn't you rather go outside and play with your brother?" When this kind of indirect method is used, no one loses face.

Traditional Agrarian Model

The Asian family structure is based on the traditional agrarian family model; males are considered more desirable than females. The head of the family is the father, who, strong and generally silent, sets the tone for the whole family interaction. He is basically uncommunicative; he is not freely available, and the children interact with him in a formal manner. The family doesn't sit at the dinner table and have a free discussion. If the Asian child wants to talk to his father, he does so privately. And he doesn't use all of the common familiar phrases. He only speaks when spoken to. This is why Asians, in general, don't develop a free and easy communicative style.

Very few Asians engage in free participation in group discussions. Generally, they feel that if they say something, it must be profound and important. They feel that one should not waste other people's time with small talk. Sometimes Asians go to meetings and hear little or

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*The following ethnic components are reprinted from ***Cultural Diversity and the Exceptional Child,*** 1973, edited by Louis A. Bransford, Leonard Baca and Karen Lane, and reprinted with the permission of the Council for Exceptional Children, Reston, Virginia.

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nothing of the discussion simply because they are so busy thinking about the question they are going to ask and worrying about whether it is important enough.

Those who teach Asian children should have an understanding of both the indirect and direct methods of disciplining children. The Asian approach is indirect. The direct method, as "shut up," represents a harshness that is frightening to many Asian children. And often Asian adults, if criticized directly, will fall apart. They will become defensive, anxiety stricken, and unable to cope with the situation. This no doubt stems from the indirect child-rearing practices.

Another cultural difference which was discussed is the Asian's outer-directedness. This has implications in terms of how Asian children might behave in school. If one is outer-directed, one's greatest fear is of making a fool of oneself in front of others. For this reason, Asian children tend to be quiet in a school setting. And, since modesty is one of the virtues in the Asian system, children don't "blow their own horn." Teachers can help by giving the praise and encouragement these children need.

One of the problems Asian children encounter in school is related to the grading system. They are overgraded at an early age mainly because they tend to be quiet, follow directions, do their homework, and conform to rules. Consequently, the parents as well as the children develop unrealistic expectations which create problems as the child progresses through school.

These are some of the major ideas discussed in the Asian group. There was a general consensus that not too much is known about Asian exceptional children. Perhaps one of the reasons for this is that the Asian culture encourages "invisibility." Some type of followup activity was encouraged to promote further research and publications in this area.

The response of the group to the discussions was enthusiastic. It was felt that a great deal of cultural awareness was attained through the Institute, even though time limitations precluded discussing some issues in greater depth.

Black Component

by Gloria Smallwood*
and Orlando Taylor**

The Nature of Language

> Language cannot be considered without considering the culture in which it was generated and is presently used. If communication with Black Children is to be achieved on an educational level, teachers must be aware of the nature of Black language in all its various forms, and the relationship of Black culture as it affects that language.—Gloria Smallwood

Dr. Orlando Taylor from the Center for Applied Linguistics and Dr. Gloria Smallwood, University of Colorado at Denver, utilized five major topics in conducting the Institute on Black language. These topics included: The Nature of Language, The Phenomenon of Language Variety, Myths and Attitudes about Language, Black Language, and Implications for Linguistically Diverse Black Children.

To highlight major points of concern, included are excerpts from the 2½ day language session.

There are four basic concepts that we need to keep in mind as we talk about language now. One, language is universal. Two, the type of languages in the world show overlap. Three, languages around the world reflect historical and social facts. Four, languages around the world are socially stratified.

We'll talk about the fact that all of the groups of the United States, particularly those who've had a particular degree of social isolation and economic isolation, tend to persist in certain linguistic and cognitive behavior styles which are ethnically predictable and must be taken into account when developing an effective educational strategy.

So language does change and it changes rapidly. There have been several books written that would be called dictionaries of Black language, vocabulary used in the Black experience. As soon as they're written, they're out of date because as soon as you learn the meanings of the words, we change them. As soon as you learn the form, we do something different. If you're having problems with kids, it's because kids need privacy and they take privacy in language.

Language is a result of our experiences. If our experiences are limited in terms of school related activities and performance, then people usually say that our language is ungrammatical, inferior, or inadequate, as opposed to different. Our experiences make us what we are now. Language develops from that experience. If you want to see verbal children, find some Black children someplace.

Do all Black people talk alike? The answer to that is "No," which means therefore that there are varieties of Black speech. And if the axiom is true that within every language there is stratification, then that obviously means that some dialects of Black speech to Black people are positive and some dialects are not positive.

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One of the things that makes Black English effective is that language for communication must contain familiar concepts. Inasmuch as Black language revolves around the Black experience, many listeners have no conceptual base for interpreting what is being said by Black speakers.

Three Main Views of Black English

I specified that the features of Black English that are of concern to us are the features that might cause communication conflict in the classroom. I want to raise a question as to what might explain the behavior. There are three main views on this. I'll indicate the first two incorrect views and the third view, which I think is correct.

The first and most conservative view is that it is simply sloppy speech. The second position is that Black English is a remnant of Southern white nonstandard English. If you think it's sloppy speech, the educational model is an eradication of it. If you buy the second model, the regional model, your educational model says, "Educate the kids to talk like everybody else in the region!"

The third and correct model is the Creolist model which in effect states that any language form is explained by the previous language of the speakers and the language groups with whom these peoples come in contact once they go to another location. The Creolist position would conclude, therefore, that Black speech forms are legitimate, are explained by history, are part of the culture, in no way can be eradicated, should not be eradicated, and to do so would be a form of cultural genocide. And obviously, the educational strategy to believe this at best is bidialectalism.

If I lock myself into a curriculum that says I'm going to teach my children Black history, Black English, Black math, Black everything, I've crippled my children. Just like I'll cripple my children if I teach them white English, white math, white whatever else. We're living in a dual society; in fact, we're living in more than a dual society. Because we've got to interact with all kinds of people, our kids have to be ready to interact with all kinds of people.

One of the mistakes we make is to say that children who have Black language cannot listen to mainstream English, which is erroneous. It's not true. The thing is that they can't produce it the same way in which it has been given to them because the linguistic foundations are different in many instances.

So many of our Black kids in the communities actually are almost perceptually deaf and perceptually blind to the problems of the mainstream culture, but have command of their immediate environmental problems. When the teacher comes along and the student doesn't respond, the teacher begins to think that he is mentally retarded. In other words, you get a negative self fulfilling prophecy.

Let's not attach a stigma to the children's language or to their circumstances. If you think that the child's not having a father in the home makes a difference, maybe you ought to reevaluate your system of judging what a child can do. If you think that every one of the basal readers that we give the children is going to relate to their community, to their environment, to their experience, then we may have to take another look at what we're using to teach children.

Indian Component

by John Kito* and Bertha Lowe**

Bilingualism and the Education Process

The Indian component of the Institute conducted by John Kito and Bertha Lowe of Anchorage, Alaska, focused on two vital, interrelated issues in the education of minority students: language in relation to culture, and bilingualsim and the education process.

To emphasize that one cannot separate language and culture, the Indian leaders demonstrated the specific skills which educators must acquire if they are to communicate effectively with children of diverse cultures. These skills included:

1. A knowledge of the individual's culture.
2. An awareness of situations which may be culturally sensitive and responses appropriate in such situations.
3. An awareness of expressions to which an individual may be culturally sensitive.
4. Familiarity with figures of speech peculiar to the cultural background of the individual.

The discussion participants saw clearly that to communicate effectively, educators must come to know and appreciate their students through an understanding of their culture and familiarity with their language.

To show the impact of linguistic and cultural diversity in a "real" classroom setting, Lowe and Kito related the discussion points to the rural school child of Alaska. During their first four years, Indian children acquire the sounds, grammar, and basic vocabulary (figures of speech, connotations, etc.) of their lingual environment. It should not be surprising then that a large percentage of all native children entering the first grade speak little or no English, or that they are soon lost in an environment where lessons, instructions, and questions are expressed in a "foreign language." These children cannot understand or make themselves understood in even the most basic situations, and thus they are asked to carry an impossible burden—those who can barely understand, cannot speak, let alone write the English language. And so, the native children are immediately behind or "retarded" in their school work.

The situation becomes hopeless for many native students and they drop out of school. Parents have learned from the humiliating experiences of others; they come to believe the school system offers no meaningful program, and may fail to send their children to school at all.

In light of the drastic mismatching of education and the native child, it seems remarkable that so few districts in bicultural areas hire teachers who can instruct in a language or dialect the native child could comprehend. It was agreed by all discussion participants that bilingual-bicultural education (survival language) must be the most important educational priority in bilingual communities today.

The aim of the bilingual-bicultural education program is to include children, not exclude them. It is neither a "remedial" program nor one which seeks to "compensate" children for their supposed "deficiencies." But rather it is one which views such children as advantaged, and seeks to develop bilingualism as a precious asset rather than a defect. The simple adoption of a program recognizing a child's language and culture may help to change the way the school views the child, and help educators and communities realize that diversity is to be enjoyed and valued rather than feared or suspected.

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**Bertha Lowe is Coordinator of Native Language Studies, Anchorage, Alaska.

In the bilingual program, two languages are used as mediums of instruction; a child is thus able to study academic subjects in his own language at the same time he is learning English. Bilingual programs teach children to read their own language and to understand, speak, read, and write English—in that order. As language is oral, it is speech before it is reading and writing. When a child enters school already speaking and understanding a language, he is ready to learn to read and write it. A program that prematurely forces English on a child can guarantee his eventual illiteracy in that language.

Lowe and Kito closed the discussion expressing concern that many children in this affluent land are being denied their fundamental right to equal educational opportunity. Our society must respond to the needs of these American children—and now.

Spanish-Speaking Component

by Juan Aragon* and
Leon Marquez**

Since language is the primary carrier of culture, the Spanish language itself was utilized as the medium of instruction in this session. By actually teaching the basics of the language (referred to as "survival language"), ample opportunity was provided for commenting on and discussing various aspects of the culture.

These Spanish language sessions were conducted by professors Leon Marquez and Juan Aragon of the University of New Mexico. Their instruction covered the most basic components of the language including select vocabulary, grammar, and syntax. One of the first discussions focused on the many commonalities between English and Spanish. The participants learned that there are hundreds of cognates in both languages that are similar and require only minor changes in spelling and pronunciation. For example, words in English that end in -tion, such as situation, end in -cion in Spanish.

It was pointed out, however, that it is not as imperative to understand the commonalities between languages and cultures as it is to be aware of the major differences. It is the differences that cause the conflict, the problems, and the misunderstandings. Take the word, ***family,*** for example. The Spanish cognate is ***familia.*** The two words appear to be very similar, but their meaning is quite distinct. The English word refers to the nuclear family which includes father, mother, children, and maybe grandparents. ***Familia,*** on the other hand, refers to a much larger set of relationships including uncles, aunts, cousins, godparents and even close friends.

A story was told by Professor Marquez about a forest ranger in northern New Mexico demonstrating the misunderstandings even apparent similarities in language can cause. A certain Juan Martinez came to the ranger and asked permission for his family to graze their cows. The ranger asked him how many cows he had, and he answered, "Two." That afternoon, the ranger passed by and saw close to 40 cows grazing; he immediately went to see Juan. "You asked me if you could graze your cows," he said, "and you told me you only had two!" "Yes," replied Juan, "I only have two; the others belong to my familia, my uncles and compadres!"

A comparison of English ***time*** and Spanish ***tiempo*** provides insight into another way that language reflect differences in cultural orientation. When the concept of time is used in reference to a clock, the dissimilarity is striking. In English, the clock runs, but in Spanish, the clock walks. (In French, the clock marches and in German, the clock functions!) Spanish-speaking Mexican Americans are not incognizant or insouciant toward time. The present moment is important and should be enjoyed. Tomorrow will be important—tomorrow.

Another comparison reflects the way cognates become dissimilar in meaning through cultural connotations. Nepotism is negatively viewed since it represents the practice of hiring one's relatives even though they are not qualified for the job. The Spanish ***nepotismo,*** however, is a positive concept. One ends up hiring a member of their extended family, but only after carefully choosing the person who is most qualified and who can also be trusted to do a good job. When John F. Kennedy appointed his brother as the chief legal adviser to the President of the United States, people from extended families applauded the decision because they understood it. He was appointing someone he loved and trusted. Other people were astonished and shocked because they viewed nepotism negatively.

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**Leon Marquez is Professor Spanish Language and Culture, University of New Mexico, Albuquerque

Misunderstandings of cultural diversities are apparent in stereotypes applied by one culture to another. This discussion used the concept of ***manana*** as an example. According to Marquez,

> The concept of ***manana*** is like the concept of ***machismo;*** it is an Anglo concept that has been attributed to us.

In essence, ***manana*** really means that what I'm doing today is more important than something I'm not doing today. What I'm going to do tomorrow will be important tomorrow—but that's ***manana.***

In teaching the child of Mexican American descent, it is most important to recognize that competition is almost nonexistent in the Mexican culture. These children are not taught to compete with one another, but rather to give a helping hand.

In responding to the question of how teachers might best communicate with the parents of Chicano students, Aragon stressed the expression of a sincere concern for the child: "If one is sincere, the style used to communicate is of secondary importance." However, teachers should strive to become knowledgeable about various cultural expressions and practices.

Dr. Aragon concluded the session by expressing concern that all Americans become sensitive to cultural distinctions; that we overcome our "hangups about a second language. We're the only country in the world that takes pride in monolingualism." We need to begin to appreciate and capitalize on the multilingual abilities demonstrated by our cultural minorities —especially as this is the key to the harmony and enrichment of a pluralistic society.

> Members of a language group are very flattered, extremely flattered by your attempt to know their language. And even though you speak it devastatingly poorly, that isn't really a concern; it's the fact that you're trying that becomes a paramount issue. People are flattered by that.

TALENTED, BUT TIMID?
A Glance at the Gifted Girl

by Lucille Runnels*

Just how sophisticated is the sixteen- or seventeen-year-old schoolgirl of today? Is she delighting in "doing her own thing" or is she, like her sisters of yesteryear, becoming tied by the leash of society and restricted to "acceptable" areas for self-fulfillment? Is she cognizant of her capacity to excel; and if so, does she have the courage to develop and market her capabilities—risking ridicule, jeopardizing family favor, and forfeiting the sanction of society? Reversing the role relegated to American womanhood is an awesome assignment for any teen.

Though a female student may recognize that she is an intellectual equal of her male classmate, it is unlikely that she will project a lifestyle for herself dissimiliar to the schoolgirl of the Sixties. This conclusion is based not only upon an analysis of responses given by over 100 female secondary students to a poll taken at Quincy, Illinois, Senior High II, but also from observing and charting initial attitudes and reactions of a mixed class enrolled in a first-time mini-course offering entitled "Born Female."**

As a teacher of the five-week mini-course developed for the purpose of increasing student awareness of the female's special disadvantage, I braced myself for a lively exchange of viewpoints and the inevitable emotional outburst. Anticipation, however, turned to frustration at the absence of strong opinion—pro or con—on feminist issues. The girls, I discovered (including those classified as gifted), simply did not realize that they had a problem! The boys attracted to the class were those sympathetic to the movement (one was a member of NOW, the National Organization for Women). Interestingly, a preliminary attitude survey revealed that the boys viewed the female role more liberally than did the girls. By the end of the five-week session, however, the girls were becoming vividly aware of a problem and began begging for an additional five weeks of study of the American woman—her role yesterday, today, and tomorrow.

What generated the excitement?

They became angry upon learning how woman has been regarded over the centuries . . .

a prostitute, if she speaks in public

a hyena in petticoats, if she asks for the vote

an infant in legal circles, incapable of owning property

a possession of her father or husband, who receives any wages earned from her employment

an inferior human speciman with a brain smaller than man's.

They became furious upon discovering that as late as 1964, an educated woman was compared to a dog attempting to walk on hind legs.

They became amazed by the deduction that the woman of the 20's was more liberated than the woman of the 60's.

They became annoyed upon understanding that the "accepted" role of women over the decades was manipulated largely by economic and social need.

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*Senior High School II, Quincy, Illinois.

**The title of a source book for the Women's Liberation Movement written by Caroline Bird.

They became understanding of the interplay of forces leading to the second major women's movement in the early 70's.

They became fascinated by projections of the role of the woman of the future.

Insights were raised, ambitions reevaluated, values clarified. But most importantly, feelings of self worth emerged and determinations to advance intensified. I witnessed girlhood fantasies vanish into visions of womanhood. It was the most rewarding ten weeks of my ten-year teaching career.

Teenage girls, I am learning, are not automatically atune to the new advantages and opportunities unfolding for them. Neither have they the frame of reference for understanding the biases of a male-controlled establishment, for which they must perform in a super-human manner in order to gain acceptance and respect. An ambitious girl is rarely rewarded. Society, in its subtle way, is still steering the girl with a dream toward a supportive role.

The school must step in. No longer can the institutions of secondary education ignore the need to develop the self reliance of its female enrollees or allow them to step naively from a sheltered environment ill prepared for competing in a man's world. Special counseling and pertinent coursework can add the extra dimension so necessary for stimulating a girl's drive for becoming the "best she can be."

MATHEMATICALLY PRECOCIOUS: MALE OR FEMALE?

by Lynn H. Fox*

Typically what has been learned of precocious mathematical ability and achievement in childhood and adolescence has been gleaned from retrospective study of the lives of eminent persons. Several famous scientists, mathematicians, and quantitatively-oriented philosophers such as Pascal, Leibnitz, and Gauss were reported to have been mathematically precocious children (Cox, 1926). Since far fewer women than men have achieved eminence in mathematics, it is not surprising that there are few reports of genius and childhood precocity among women (Cox, 1926; Bell, 1937; McCurdy, 1957; Stanley, 1974a; Stern 1971). There has been no evidence, however, to suggest whether precocious development is indeed more rare among females than males or merely less visible.

Perhaps because of their assumed rarity, cases of precocious intellectual development and educational achievement have not been well-researched. Not even the monumental longitudinal study of intellectual giftedness by Terman (1925) provides information concerning precocious mathematical talent and achievement among children designated as gifted by measures of global intelligence.

An ongoing study of mathematical precocity at the Johns Hopkins University offers some interesting insight into the question of sex differences in mathematical precocity. First, it provides information concerning the existence of precocious mathematical reasoning ability among adolescents, and, second, it explores the question of how precocious achievement in mathematics can be fostered.

THE EXISTENCE OF PRECOCIOUS MATHEMATICAL REASONING ABILITY IN ADOLESCENTS

The Study of Mathematically Precocious Youth (SMPY) began in the fall of 1971 to search for junior-high-school-age students who were precocious in mathematical reasoning ability as evidenced by very high scores (660-800) on the Scholastic Aptitude Test Mathematics (SAT-M). In order to discover these talented students, SMPY conducted a talent search in each of the years 1972, 1973, and 1974. The rationale for discovering precocity by using difficult pre-college level tests is discussed in depth elsewhere (Stanley, Keating, and Fox, 1974). The results of each year of testing are summarized in the following sections.

The 1972 Contest

In March of 1972, seventh, eighth and young-in-grade ninth grade students in the greater Baltimore area who had scored at or above the 95th percentile on the numerical subtest of an in-grade standardized achievement test such as the Iowa Tests of Basic Skills were invited to participate in a contest. Three hundred ninety-six students (223 boys and 173 girls) accepted the challenge and took the SAT-M.

The results of the testing were startling. Twenty-two boys (about 10 percent of the male contestants) scored 660-790. This is better than the average Hopkins student scored as an eleventh or twelfth grader. Clearly, there are many mathematically precocious boys. The highest score for a girl, however, was 600. Although 44 percent of the contestants were girls, 19 percent of the boys scored higher than the highest scoring girl. The difference in points between the highest scoring boy and the girl was 190 points (Stanley, 1973; Keating, 1974).

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*The Johns Hopkins University, Baltimore, Maryland.

The mean scores for boys and girls in the contest, by grade, are shown in Table 1.

		Number	Mean
8th & 9th Grade	Boys	133	524
	Girls	96	456
7th Grade	Boys	90	460
	Girls	77	423

Table 1

Mean Scores on SAT-M for Students, by Grade and Sex, in the 1972 Talent Search

Since the number of young-in-grade ninth graders was small, their scores are reported with those of the eighth graders. The highest mean score for any group was 524 for eighth and ninth grade boys. Seventh grade boys had a mean score of 460 followed by eighth and ninth grade girls and seventh grade girls with mean scores of 456 and 423, respectively.

The 1973 Contest

In the winter of 1973 a second talent search was conducted. This time students were considered eligible for the contest if they had scored at or above the 98th percentile on an in-grade numerical subtest of a standarized test such as the Iowa Test of Basic Skills. Wider publicity helped to increase the total number of students who participated. There were 666 students in the contest (420 boys and 246 girls). The percentage of girls, however, dropped from almost a half (44 percent) in 1972 to just over a third (37 percent) in 1973. This decrease in participation by girls may have been due in part to the fact that there were actually two* contests in 1973 – one for mathematics in January and one in the verbal area in February. Students in both contests took the SAT-M and SAT-V. Students were told they could enroll for either contest and be eligible for prizes in both. The total number of students in both contests was 953. There were 537 boys (56 percent) and 416 girls (44 percent).

The highest SAT-M score for a girl in the 1973 contests was 650, while two boys (one a seventh grader) attained scores of 800 (Stanley, 1973). Seven percent of the boys in the 1973 contests scored 660 or more. No girl did. The mean scores on SAT-M, by sex, grade, and contest entered, are shown in Table 2.

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* In 1972 the Study of Verbally Gifted Youth (SVGY) was begun at The Johns Hopkins University. Thus in the winter of 1973 there were two contests. SMPY held their contest in January and SVGY held theirs in February. The SAT-M and SAT-V were given at both contests. Students were told to register for the January contest if they were primarily interested in mathematics, and to register for the February contest if their interests were primarily in the verbal area. Students were eligible, however, for prizes in both contests.

Table 2

Mean Scores on SAT-M for Students, by Grade and Sex, and Contest Entered, in the 1973 Talent Searches

		Mathematics Contest		Verbal Contest		Combined	
		Number	Mean	Number	Mean	Number	Mean
8th & 9th Grade	Boys	285	551	65	490	350	540
	Girls	158	511	103	446	261	485
7th Grade	Boys	135	495	52	434	187	478
	Girls	88	440	67	396	155	421

In the total group of contestants for both contests, eighth and ninth grade boys scored highest (540) followed by eighth and ninth grade girls (485) and seventh grade boys (478) and girls (421). Girls in the mathematics contest in both grades scored lower than the boys in their grade-group who came for the mathematics contest, but scored higher than either boys or girls in their grade-group who were tested in the verbal contest.

The 1974 Contest

In January of 1974, a third talent search for mathematics was held. Students throughout the entire State of Maryland who had scored at or above the 98th percentile on the numerical subtest of a standardized achievement test were eligible for the contest. The testing was conducted in four centers across the state (The Johns Hopkins University, University of Maryland at College Park, Salisbury State College and Frostburg State College).

A total of 1519 students took the SAT-M Thirty-nine percent of the participants were girls (591).

Sixty-one students scored 660 or above. Seven of those students were girls. One girl scored 700. The highest score earned by a boy was 760. In 1974 less than 2 percent of the boys scored higher than the highest scoring girl. Mean SAT-M scores in 1974 are shown in Table 3, by grade and sex. The pattern of mean scores in 1974 was similar to that of 1973.

Table 3

Mean Scores on SAT-M for Students, by Grade and Sex, in the 1974 Talent Search

		Number	Mean
8th, 9th, & 10th Grade	Boys	556	541
	Girls	369	503
7th Grade	Boys	372	473
	Girls	222	440

There were sex differences within each grade-group in favor of the boys.

Sex Differences

Boys and girls who participated in a voluntary mathematics contest (and who qualified for that contest on the basis of high scores on standardized tests of grade-level mathematics achievement) differed considerably with respect to performance on a difficult pre-college level test of mathematical reasoning ability. Mean scores for boys in the contests have been at least 35 points higher than for girls in each of the three years.

Thus, as early as grades seven and eight, boys out-perform girls on difficult pre-college level tests of mathematical reasoning ability, and the differences are particularly striking at the upper ends of the distributions. In three years of searching, SMPY has identified considerably more males than females who are highly precocious mathematical reasoners. The self-selection aspect of a contest may have contributed to the greater male than female participation in the contest, but this does not explain why the ratio of boys to girls who scored 660 or above (16 to 1) was so much greater than the overall ratio of boys to girls in the contests (1.4 to 1).

Whether or not these apparent differences in mathematical aptitude for the two sexes is a result of biological differences or differential cultural reinforcements over time, or a combination of the two, is not clear. One would expect to find a large gap at the upper end of the distribution of mathematical ability (as was found by SMPY), if the biological explanation of sex differences in mathematical ability is correct. At the present time, however, many researchers feel that there is too little known about the inheritance of specific abilities such as mathematical aptitude to justify such a conclusion (Maccoby and Jacklin, 1972; Astin, 1974).

Some researchers believe that the differences between the sexes in average performance on tests of specific abilities such as mathematics reflect differential cultural reinforcements over time which have shaped the career and educational goals, interests and achievements of the two sexes (Aiken, 1970; Astin, 1968a, 1968b, 1971; Hilton and Berglund, 1971).SMPY's study of the characteristics of mathematically precocious adolescents does lend some support to the social explanation of sex differences at the higher levels of ability and achievement.

Boys who scored 660 or more on SAT-M had stronger orientations towards investigative careers in mathematics and science and greater theoretical value orientations than did their less mathematically precocious male and female peers (Fox, 1973; Fox and Denham, 1974). Many of the highly mathematically precocious boys report studying mathematics and sometimes science textbooks systematically with the help of a parent or interested teacher, while others have worked informally with mathematical puzzles, games and books. What has motivated this extracurricular pursuit of knowledge appears to be strong theoretical and investigative values and interests.

Girls, even the most mathematically talented, are far less likely than boys, particularly the most mathematically talented boys, to seek out special experiences related to mathematics and science. Girls tend to have values and interests of a more social than theoretical nature (Fox, 1973; Fox and Denham, 1974). Thus it is not surprising that few girls report that they study mathematics on their own. Thus, differential performance by the sexes on difficult pre-college level tests of mathematical reasoning ability, at grades seven and eight, could be partially a result of differential exposure to and practice with mathematical problem solving situations arising from different interests and value orientations.

Girls also appear to receive less encouragement at home to consider scientific pursuits. In a small sample of gifted students studied by Astin (1974), parents of boys often had noticed their sons' interest in science at an early age. Parents of boys typically reported that they had discussed college careers in science, mathematics, medicine, and engineering with

their sons. These parents reported providing more scientific materials such as toys, books, and games for their sons than did parents of girls. Very few parents of girls had noticed their daughters showing interest in mathematics or science at an early age. The occupations which these parents had discussed with their daughters were more apt to be traditionally femine ones such as nursing and teaching. The parents of the girls had given less thought to future educational plans for their daughters than had the parents of boys.

FOSTERING PRECOCIOUS ACHIEVEMENT

Although it is difficult to draw conclusions about the relative influences of biological and social factors upon the performance on measures of aptitude (e.g. some would even argue the possibility that some of the differences in test performance are artifacts of biased test materials), there is clear evidence that precocious achievement in mathematics can be directly influenced by environmental factors. SMPY's attempts to foster acceleration in mathematics provide some interesting insights into the dynamics of precocious achievement among bright adolescent boys and girls.

SMPY has sponsored three experimental accelerated mathematics classes on the Hopkins campus and two classes in a public junior high school. The details of these classes are reported in depth elsewhere (Fox, 1974a, 1974b; George, 1974; Stanley, 1974b). A summary of the results of these five classes and their implications for understanding the differences between the sexes with respect to precocious achievement is presented in the following sections.

Class I - Boys and Girls

In the summer of 1972, 30 end-of-the-year sixth graders* (18 boys and 12 girls) were invited to a special summer mathematics class which met two hours a week. Fourteen boys (78 percent) and seven girls (58 percent) enrolled for the program. The initial success of the class in mastering Algebra I with only 18 hours of instruction was so great that the class continued to meet for two hours a week through the middle of the following summer. Of the 21 students who initially began the course, six boys (43 percent) and one girl (14 percent) completed the study of all their pre-calculus mathematics (Algebra I, Algebra II, Algebra III, Plane Geometry, Trigonometry and Analytic Geometry). Six of the boys took calculus the following year in a senior high school.

Class II - Boys and Girls

In the summer of 1973, 85 students (51 boys and 34 girls) who had participated in the 1973 talent search and who had scored at least 500 on SAT-M and 400 on SAT-V were invited to a summer accelerated mathematics class. Most of these students were eighth graders who had completed Algebra I. Twenty-two boys (43 percent) and nine girls (29 percent) enrolled. Fourteen boys (64 percent) and none of the girls completed all the pre-calculus mathematics by the middle of the following summer, meeting only two hours a week during the school year and four hours a week during the second summer. (George, 1974.)

Although these classes were highly successful in promoting precocious achievement in mathematics among boys, they were both far less successful with girls. First, more boys than girls were eager to enroll in such a program. Secondly, girls who did enroll tended to drop out of the classes before their completion.

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* Thirty students were invited. One was an end-of-the-year third grader. Another was an end-of-the-year eighth grader. The remaining students were end-of-the-year sixth graders.

Interviews with the girls indicated that one major reason for dropping out was a reluctance to become accelerated in their placement in school. Many of the girls seemed to fear being labeled as different from their friends by virtue of becoming somewhat accelerated. Girls also reported that the class meetings were dull, and some made references to the boys in the classes as "little creeps." The overall reaction to the classes by the girls was that they were socially unappealing and might have negative social consequences for the girls in school.

It has been reported that even very bright girls often self-select themselves out of advanced mathematics classes in high school (Haven, 1972), and that few women ever pursue doctoral degrees awarded in mathematics were earned by women (Bisconti and Astin, 1973). Until this present study, however, it was not known that bright girls in junior high school would be far more reluctant than boys to participate in special accelerated mathematics programs and, especially, to persist in them.

Class III - An All-Girl Class

The results of testing values and interests of boys and girls in the 1973 contest suggested that even the most mathematically able girls were likely to prefer social to theoretical activities. In combination with the results of the first two accelerated mathematics classes, this suggested that to interest girls in learning mathematics faster it would be important to consider the social aspects of a program.

Thus in the Spring of 1973, an all-girl accelerated Algebra I class was organized for seventh grade girls who had been in the 1973 contest and who had scored at least 370 on SAT-M (the average of female juniors in high school)*. The details of the program for girls are reported elsewhere (Fox, 1974b). In brief, the class was designed to appeal to the social interests of girls in a number of ways. It emphasized social cooperation rather than competition and was taught by a woman rather than a man. Men and women scientists and mathematicians spoke to the girls about exciting careers in mathematics and science (such as operations research, health statistics, and social science research) which deal with social problems as well as theoretical ones. This approach to an accelerated program was considerably more effective in recruiting girls. Of the 34 girls invited, 26 enrolled (76 percent). Eighteen girls (69 percent) completed the course. Not all girls, however, chose to accelerate their mathematics in school the following year, and a few actually met with resistance from their schools to their acceleration. Eleven did take Algebra II the following year; 10 of these (38 percent) were considered to have been successfully accelerated.

The emphasis on the social interests of girls was moderately effective in promoting greater achievement in mathematics for girls than had the two mixed-sex, more theoretically-taught classes. This approach, however, did not promote the same extent of acceleration for the girls that the other two programs did for the boys. Five of the girls from the all-girl class have indicated some interest in becoming further accelerated in mathematics (by as much as two or three years) by the time they complete high school and enter college.

Classes IV and V - City Public School

In the winter of 1974 Leon Lerner, a guidance counselor at Roland Park School in Baltimore City, asked SMPY to set up in that school a fast-paced mathematics class based on the principles learned from classes I-III. Twelve boys and twelve girls in grades four through seven

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*Two girls who had not participated in the 1973 contest were later tested on SAT-M and allowed to take the course. One of these girls scored 350 on SAT-M. Since she had been eligible for the first class but had not enrolled, the decision was made to let her be in the all-girls class. Her score of 350 was considered to be an under-estimate of her ability. The following year she scored 570 on a different form of the SAT-M

were selected to participate. On the basis of past experience SMPY suggested that there be two fast-paced classes—one for boys taught by a male college professor and one for girls taught by a female college professor. One boy and one girl dropped out of the program. Both classes made rapid progress through Algegra I, meeting two hours a week for a total of 37 hours the first year, and all who remained in the school the following year elected to continue in the fast-paced class to study Algebra II. Although on an average the girls were a somewhat less able group than the boys, the two groups performed about equally well on a standardized Algebra I test at the end of the first year. Both classes were considerably more successful in mastering Algebra I than the class of eighth graders in a regular Algebra I program for a full year (Stanley, 1974b).

The success of these two classes in fostering high achievement at an accelerated pace suggests that special programs of this type may be more successful for girls when they are conducted within the context of the regular school. Further research is needed to determine just how successful these programs can become for both boys and girls if implemented on a large scale within public schools or school systems. Whether or not sex-segregation and women teachers as role models are actually crucial for the success of girls needs to be studied systematically within school settings.

Conclusions

On the basis of SMPY's research on the mathematically precocious, it appears that males are more likely than females to perform at a very high level on pre-college level tests of mathematical reasoning ability (at least in a voluntary contest situation). The sizable gap between the sexes on mean SAT-M scores and at the upper end of the distribution as early as grade seven suggests that there may be biologically-based differences between the sexes with respect to mathematical aptitude. There are, however, strong indications that some of the apparent differences are related to environmental factors. Whether or not greater efforts to encourage and develop mathematical interests among women in childhood and adolescence could eliminate or reduce this sex difference at the higher levels of ability is not known.

Clearly it is much more difficult to foster precocious achievement and acceleration in mathematics among girls than boys. Some attention to the social interests of young women in structuring learning environments to foster accelerated achievement appears to increase the rate of participation and success of females. To date, however, SMPY has not effectively helped to accelerate any girl as far or as fast as most of the boys in its programs. This should not be interpreted as meaning that it is unprofitable to work with bright girls. Although mathematical precocity (both in measured ability and achievement) is far more evident among young males than females, SMPY's efforts to foster greater achievement among very bright students does suggest that girls can be helped to develop their quantitative potentials more fully.

Even if there are biologically based differences between the sexes which account for much of the differing degrees of precocity between the sexes, it is still desirable to develop ways of fostering greater achievement among women as well as men. It would appear, however, that our instructional strategies and classroom environments should be more systematically studied and regulated to avoid unnecessarily discouraging young women from developing their mathematical potentials to the fullest.

The fact that mathematical precocity appears to be rarer and not just less visible among females than males in adolescents, at the present time, can lead us into one of two directions for future educational planning and development. First, we could concentrate upon boys all efforts to find and foster high level achievement and talent in mathematics, since they will

be easier to find and to work with. (This first direction sounds very much like what, perhaps unintentionally, is occurring in most schools today.) The second direction would be to concentrate our efforts to identify talented young women as well as young men, but also to modify or restructure our instructional strategies for girls to optimize their chances for high level achievement. The long-term benefits of this second approach could have some quite gratifying results.

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THE CULTURALLY DIFFERENT GIFTED CHILD – THE DAWNING OF HIS DAY?*

by Irving S. Sato**

The Need

Sixteen years ago in 1958 David C. McClelland and others in ***Talent and Society*** underscored an educational opportunity and challenge:

> As students from impoverished background and from racial and ethnic minorities have "achieved" when provided with appropriate educational opportunities, they have demonstrated that "the right kinds of education" can indeed transform potential into "actually talented performance."

This statement summarizes numerous research studies on the education of the culturally different gifted child. Witty and Jenkins (1934) and Jenkins (1948) in their works have shown that high-IQ black pupils have varying backgrounds, that their achievement is like that of other gifted students, and that race in itself is not a limiting factor in the development of the intellect. Similar findings have been reported by Niles (1954) and others. More recently, works of individuals such as Bloom (1964), Bernal (1972), and Stallings (1972) have reminded educators that environment does play an important part in intellectual development.

Another consideration highlighted by Frierson (1965) and Karnes, et. al. (1965) is the differences among socioeconomic classes. Frierson has reported that the major difference between gifted pupils from middle and lower classes lies in interests and attitudes, not in physical-ability or personality measurements. Karnes has uncovered more tensions in homes of lower-class families; these tensions seemed to have direct effects on achievement levels.

In 1972, the U.S. Commissioner of Education in ***Education of the Gifted and Talented, Report to the Congress*** dramatically pointed out that of the 2-2½ million gifted and talented pupils in the United States, only four percent are being adequately served in schools. Therefore, not only the culturally different gifted child but most other gifted and talented pupils are not currently receiving educational opportunities commensurate with their abilities. Actually, the culturally different gifted child then faces a double bind in education: (1) Being culturally different and (2) being gifted. To improve the present situation, some definite elements are essential: (1) A clearer definition of the term ***culturally different gifted child,*** (2) a reexamination of identification procedures, (3) qualitatively-differentiated program provisions, (4) availability of resources (both human and otherwise).

The Definition

Beset with varying labels (many of them misnomers) such as ***culturally disadvantaged, socially disadvantaged, culturally diverse,*** and ***culturally deprived,*** the culturally different gifted child has been the victim of a communications battle. To be fair, the term ***culturally different gifted*** should be defined in two parts.

First, the ***culturally different*** comprise one segment of a larger subpopulation called the educationally disadvantaged. This latter broader category includes not only the culturally different but also such groups as the economically deprived, female, handicapped, rural, and underachieving. The major refining factor in the definition of the ***culturally different*** is

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* This article is reprinted from ***Exceptional Children*** (May, 1974) with the permission of the Council for Exceptional Children, Reston, Virginia.

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membership in a culture other than the dominant culture in society.

Next, the ***gifted*** (and the talented) – a synthesis definition of the works of T. Ernest Newland with the University of Illinois and J Ned Bryan of the U.S. Office of Education – are those individuals who excel consistently or show the potential of excelling consistently in any human endeavor – academic, creative, kinesthetic (performance skills), or psychosocial (relational and leadership skills). This broader definition of ***gifted*** presents an alternative to the stereotype of the Terman-type, identified-solely-by-IQ-test gifted child and recognizes the potential for outstanding achievement and performance in any area.

Identification Procedures

Specific, multiple criteria must be the bases for the identification of the culturally different gifted pupil. Needed is a multifaceted, developmental case study which includes all available evidence on the potential and performance of a child. This need for the case study is underscored by the complex factors which must be considered to begin to understand the culturally different gifted. For instance, Anita Pfeiffer, a Navajo on the faculty of the University of New Mexico, expressed (at the Working Conference on the Culturally Different Gifted Child in North Carolina in September, 1973) the great pressure a Navajo is sometimes under to choose or select some element(s) in the dominant culture by giving up that which is important or dear to him in his native culture:

> . . . In accepting both cultures (Navajo and "Anglo"cultures), there is a tremendous sacrifice on the part of the Navajo student to lose what is precious and dear to the individual. The individual loses much of his culture. In order to remain Navajo, one should not learn English and attend the present school system. The moment one enters school and begins to learn English, one begins the annihilation of one's culture. When educators ask us to accept both, we are being asked to uproot ourselves from our own culture; the process of accepting both cultures is a traumatic experience for those of us who have gone through this process. The pressure to choose is overwhelmingly geared towards the "Anglo" ways . . . . It seems to me that teachers need to examine their own values and attitudes first before they can begin to understand us – the culturally different.

Professionals involved in the identification process should understand environmental and sociological differences which are an integral part of various cultures. They should know about how these differences influence the behavior and performance of the culturally different gifted in school as well as in the community. In addition, these educators must be thoroughly familiar with the learning process and accompanying learning theories as set forth by researchers such as J. Piaget, J. P. Guilford, B. Bloom, P. Phenix, and others. Otherwise, they will be unable to comprehend or appreciate the essence of giftedness.

Individuals currently developing and/or refining possible means of identifying culturally different gifted pupils include Bernal (1972), Bruch (1972), Grant and Renzulli (1971), Meeker (1969), Stallings (1972), and Torrance (1971). Bernal has been conducting a research project on identifying gifted among Chicano children in Texas; a final report is soon forthcoming. Bruch has selected items in the Stanford-Binet and "biased" the test toward disadvantaged black children in her ABDA (Abbreviated Binet for Disadvantaged); she is now in the process of validating this instrument. Bruch has also developed the Creative Binet, an abbreviated Binet to measure creative potential. Grant and Renzulli (1971) designed the Sub-Cultural Indices of Academic Potential (SCIAP), which asks pupils how they feel about

themselves and how they would react to everyday situations. By taking into consideration factors as test bias and cultural differences, the use of this instrument results in a profile of student preferences and learning styles. For several years, Meeker has been working with the SOI (Guilford's Structure of Intellect) by isolating and testing for specific areas of types of "giftedness." Stallings has concentrated his efforts on the development of instruments placing major emphasis on items endemic to the child's environment. The Torrance Tests of Creative Thinking verbally and nonverbally measures fluency, flexibility, originality, and elaboration.

Fitzgerald (1974), Gallagher (1974), Martinson (1973), and Renzulli (1971) have prepared recent summaries of various efforts to develop better measures of human potential. These works and others have reported numerous means currently being used to identify culturally different gifted pupils:

1. Various psychometric instruments
   a. WISC - Performance Scale
   b. Leiter International Performance Scales
   c. Ammons' Full-Scale Picture Vocabulary Test
   d. Goodenough Draw-a-Man Test
   e. Peabody Picture Vocabulary Test
   f. Raven Progressive Matrices
   g. Rohwer's Paired Associate Learning - Proficiency Test (developed at the University of California at Berkeley)
   h. Scales and tests of creativity developed by individuals such as Guilford, Metfessel, Taylor, Torrance
   i. Nonverbal parts of IQ tests (both group and individual)
   j. Parts of other existing performance tests
   k. Locally-constructed tests
2. Other sources of criteria
   a. Alpha Biographical Inventory (developed by the Institute for Behavioral Research in Creativity)
   b. Pupil Nomination Form — Social Data (developed by the Lincoln School of Kentucky)
   c. Planned student interviews conducted by specially-trained personnel
   d. Planned parent interviews
   e. Various checklists (for student, teacher, counselor, parent use) developed through past and existing research projects and by educators in local settings
   f. Evaluation of work samples by a panel of "experts"
   g. Reactions to various perceptual and sensory stimuli — i.e., responses to pictures and/or incidents with qualitative variety; likes and/or dislikes of the complexity of designs
   h. Peer-nomination (sociometric) devices.

Qualitatively-Differentiated Program Provisions

The identification of culturally different gifted pupils must be followed by planned, qualitatively-differentiated program provisions. As in other areas of special education, the bases for curricular

modifications and program adjustments should be those unique characteristics (motivational and otherwise) which differentiate this population from other learners. For instance, Riessman (1962) points out that because the culturally different gifted often are more problem-centered than abstract-centered, they should be involved in ***specific*** classroom situations which only gradually result in inductive thinking. Concrete and psychomotor responses are frequently elicited by using simulation and other academic games and role playing.

Educational efforts are being made for the culturally different gifted in various parts of the country. Through Project CLUE (Cooperative Leadership for Urban Education), Tennessee's four major school systems – Chattanooga, Knoxville, Memphis, Nashville – are involving urban students in learning strategies which seek to change student apathy into positive action and channel student activism into responsible accomplishment. This project draws 600 talented fourth, fifth, and sixth graders from 51 schools for two half-day sessions per week at a CLUE center. In the setting of a creativity workshop at the University of Georgia during each summer since 1967, Torrance and his graduate students (many of them teachers in public schools) have strived to identify and develop creative talent among the disadvantaged. With approximately 80-100 children ranging from six to twelve years old, these workshops have been conducted in a disadvantaged black neighborhood in Clarke County, Georgia.

From 1969 to 1973, Los Angeles City Unified School District conducted educationally disadvantaged developmental pilot programs, grades 4-6, 7-9. These programs initiated at eleven schools were based upon the situational-testing model, which coupled identification procedures with ongoing class programs of enrichment. Before the initiation of the program, members of the faculty learned about the characteristics of disadvantaged gifted and discussed possibilities for program implementation. Student participants were initially nominated by teachers and later screened by a local school committee which worked with a counseling staff to review all available data. Primary program objectives were ". . . to give a wide exposure in advanced learning skills and to offer curricula which would stimulate these pupils to display gifted potentials. . . ." Taking into account the students' environmental and school backgrounds, the staff emphasized informality as the key in the classroom as groups reorganized frequently and flexibly. Lessons were free from anxiety with few time pressures, grades, and "right" answers.

Other programmatic undertakings affecting the culturally different gifted include the Nueva Day School (a private school in Hillsborough, California, for high-potential, disadvantaged youth which develops and disseminates research results and instructional materials), Project Access (conducted in New York, D.C., Atlanta, Chicago, Dallas, Detroit, and Los Angeles to reduce the information gap on students in ghetto areas), and Project Potential (conducted by N. Metfessel of the University of Southern California to identify variables which contribute to achievement among Mexican-American students). In addition, there are several alternative schools which concentrate their efforts on these pupils such as those in Philadelphia, Pennsylvania; Worchester and Springfield, Massachusetts; and Hartford, Connecticut.

Passow (1972) has recently discussed some action steps necessary for effecting qualitatively-differentiated programs for the culturally different gifted:

1. Offer opportunities for these students to teach their fellow students.
2. Encourage varied activities for talent development in non-conventional settings, involving nontraditional personnel.
3. Plan and conduct staff inservice which is necessary to alter expectations related to identifying and nurturing talent among the culturally different, using new and appropriate teaching strategies and utilizing learning resources in the school and the community more effectively.

4. If involved in work with inner city schools, take advantage of rich resources for learning in many urban centers.
5. Search for better strategies to recognize bilingual needs and the potential richness of cultural differences.
6. Develop appropriate guidance and other ancillary services and help these pupils with affective matters such as peer and family attitudes toward the gifted child's "being different" and the recognition of options.
7. Secure opportunities for these pupils to serve in various community agencies.
8. Assist in the development of financial resources, if needed; expand opportunities for the gifted student to serve and to work as a means of earning some income.

In the final analysis, the key to the success of any educational program for children is the teacher. Teacher-preparation programs specifically to train teachers of culturally different gifted pupils are in operation at the University of Connecticut with Renzulli, the University of Georgia with Torrance and Bruch, and the University of South Florida with D. Sisk. Educational agencies are recognizing more and more the importance of inservice education in supplementing preservice training.

Available Resources

Through the cooperative efforts of existing groups and agencies (i.e., Office of the Gifted and Talented, Regional Offices of Education, State educational agencies, The Association for the Gifted, National Association for Gifted Children, etc.), productive efforts in behalf of the culturally different gifted are resulting. In August, 1973, in Las Vegas, the Council for Exceptional Children sponsored a one-week Institute/Conference on Cultural Diversity. It was followed in September, 1973, in North Carolina by the Foundation for Exceptional Children's Working Conference on the Culturally Different Gifted Child. Reports from both conferences will be published shortly. At the present, the National Clearinghouse for the Gifted and Talented assists through ERIC searches and other leads; in the future, it plans to augment its dissemination of practical information with such items as synthesis papers and resource lists.

The National/State Leadership Training Institute on the Gifted and the Talented (N/S-LTI-G/T) has encouraged States to include provisions for the culturally different gifted in their State plans. In March, 1973, it sponsored the first National Conference on the Disadvantaged Gifted (with emphasis on four types of disadvantages – culturally different, economically deprived, female, and rural); a publication related to this conference will be out shortly. During 1972-'73, the N/S-LTI-G/T in cooperation with the State of Illinois Office of the Superintendent of Public Instruction produced some one-minute TV commercials on the disadvantaged gifted as well as the 25-minute film ***More than a Glance,*** which examines factors contributing to the development of a black girl's special talents. By Spring, 1974, the N/S-LTI-G/T will have available for purchase two publications with sections related to the culturally different gifted – ***The Identification of the Gifted and Talented*** and ***Providing Programs for the Gifted and Talented: A Handbook.***

None of these activities in isolation can affect the status quo. But society has been jarred somewhat from its lethargy into an awakening; it seems more aware and conscious of special and different educational needs. What remains now is for the separate "pro" elements to coordinate their efforts. With clear, long-range goals, the united and unified efforts of the committed can effect change for these children.

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CREATIVITY AND THE POVERTY CHILD

by Bruce Mitchell*

The literature dealing with the topic of creativity and the creative problem-solving process has multiplied astonishingly during the past twenty-five years. Since J. P. Guilford read his famous paper at the 1950 national meeting of the American Psychological Association, a multitude of research and theories pertaining to the subject has appeared in the literature. In his presentation, Guilford indicated that prior to that time, only 123 of the psychological abstracts dealt with that subject.

Thus, it can be seen that the subject is very new and most of the work has been done during the past twenty-five years. During this time, a number of inservice programs have been generated to increase the level of importance given the topic in public school classroom environments. Among the more successful was the Goleta Union School District Creativity Project in 1966-68.

Research based on pre- and post-measures of the Minnesota Tests of Creative Thinking indicate that the inservice program was successful in improving creativity test scores of students who were in classrooms of participating teachers.** These and other studies would seem to indicate that the development of increased openness and flexibility on the part of elementary teachers is indeed capable of establishing classroom climates which assist in the development of creative thinking skills.

As one visits large numbers of public schools, however, it becomes increasingly obvious that the job of developing creative thinking skills is still not getting done and that little emphasis is actually placed on the development of creative problem solving skills. In fact, according to Jerome Bruner, the crisis in American Education has reached alarming proportions. He has written the following:

> Education is in a state of crisis. It has failed to respond to challenging social needs — lagging behind rather than leading. My last six months' work on early education and social class, for example, convinces me that the educational system is in effect our way of maintaining a class system — a group at the bottom. It cripples the capacity of children in the lowest socioeconomic quarter of the population to participate effectively in society, and does so early and effectively.***

Although Bruner is not addressing himself directly to the topic of creativity, there are some obvious implications. His latter statement pertaining to the crippling effect of public education on children from the culture of poverty warrants further scrutiny since it corroborates the findings of many other educational sociologists. That public schools have failed to meet the needs of youngsters from the culture of poverty can be seen by examining the statistics pertaining to dropout rates of poor children. The public schools, a product of the middle-class society, have failed to grasp the urgency of the situation.

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The problem is further compounded when turning to the extent of creative problem solving potential developed by youth from poverty cultures. The importance in developing such skills is self evident. By the year 2000, social scientists tell us that the world will be faced with famine, lack of oxygen, extensive pollution, and mass overcrowding. Multitudes of new jobs, ever-increasing change, and other factors all bear testimony to the need for developing creative potential. For if tomorrow's person is to survive such a changeable millieu, it would appear necessary that such creative problem solving skills certainly should be developed to their fullest in order to merely survive.

The central thesis of this paper is that the poverty culture lacks these skills more than other segments of the society. Schools in poverty areas, then, need to examine inservice programs similar to Goleta's in order to develop this potential.

Conclusions from research studies conducted by Newton Metfessel, Principal Investigator of Project Potential through the University of Southern California, reveal a number of fascinating insights pertaining to children from poverty cultures. Such youngsters . . . .

1. Typically have parents who do not have the language skills to enable them to foster their children's language and cognitive development.
2. Typically come from homes where there is a sparcity of objects such as toys and play materials of different colors, sizes, and shapes. Consequently, the children receive little or no training in the concepts of color, directionality, position, or relative size.
3. Typically are crippled in language development because they do not perceive of the concept that objects have names and that the same object may have different names. This may be one of the major reasons why poor children have later difficulty in coping with instruction in reading.
4. Typically lack a family environment in which questions are asked or answered. Consequently, these children do not perceive of adults in general as people from whom you ask questions and receive answers, a fundamental postulate on which the school culture is organized.
5. Are typically disciplined by physical force. In the school culture, discipline is invariably through reason (insight building) or deprivation of privilege. Since reason is generally not used in the poverty home, the child has had little opportunity to build insights into the causes and consequences of his own behavior. In school settings, he reacts to 'reason' discomforted.
6. Typically have little encouragement of their fantasy lives. Middle class parents will generally accept a child's imaginary playmate, for example, and may even enter into imaginary play. The parent from the culture of poverty tends to remain neutral and on several occasions in the instance of imaginary playmates, remonstrate their child for 'lying.'
7. Typically have parents working at jobs which require little education; this frequently gives the child the impression that school is not particularly important in terms of preparation for life.
8. Typically have had little or no out-of-school experiences which are translatable to the school culture. Out-of-school resources such as zoos, museums, libraries, and exhibition halls were found to be unfamiliar to the majority of the children. Over half, as well, had never been to the Pacific Ocean, although it was less than twenty-five miles away.

9. Frequently have parents who are concerned that too much formal education may 'spoil' their child. Anxiety about losing status in the eyes of their growing offspring as educational differences are increased is a particular manifestation of this concern.

10. Frequently have parents who feel that the family is pre-eminent over school attendance laws. Consequently, what is defined as truancy by the school may be viewed as a sign of loyalty by the parents. Also, the observed truancy of older brothers and sisters in situations not related to family welfare or family well-being contributes to patterns of poor attendance.

11. Frequently come from a home environment with such a paucity of objects that the child's conceptual formation development is adversely affected. For the purpose of the Project Potential research, concepts were defined as abstractions from things (concrete objects). This demands that a subject have concrete objects on which to build abstractions (identify similarities and differences) in order to generalize to new situations.

12. Frequently come from a home environment with such a paucity of objects that their level of curiosity is affected. One develops curiosity, generally, by having things to be curious about. Certainly the lack of curiosity affects both motivational patterns and the development of creative behavior.

13. Frequently have parents who communicate negative appraisals of the school establishment because of their own difficulties in coping with the school culture. By a process of horizontal acculturation in which the school goes into the home, the vertical acculturation demanded by the school establishment is facilitated.

14. Frequently have parents who lack a basic understanding of the educative process to such an extent that the school is perceived as a place where 'magic' occurs, e.g., the child learns to read, write, and spell. One of the major benefits of having parental participation in school programs, particularly pre-school, is the eradication of this belief which occurs in inverse relationship to their understanding of the educative process.

15. Frequently have homes in which the physical environment mitigates against the development of listening skills. The home is frequently so noisy that the child learns to 'tune out.' This not only occurs in situations of yelling and screaming, but also in the general noise level increased in cramped living quarters by such things as radio and television. The kind of television watched in the homes of the poor has little in it that is translatable to the school culture.

16. Typically are characterized by weak ego-development, a lack of self-confidence, and a negative self-concept. These conflicting feelings about themselves frequently result in exaggerated positive and negative attitudes towards others.

17. Frequently fail because they expect to fail which only tends to reinforce their feelings of inadequacy.

18. Frequently have had little experience in receiving approval for success in a learning task, an assumption on which the school culture is organized. Teachers should be sensitive to the fact that these children frequently perceive praise in context of evaluation rather than reward.

19. Typically are placed at a marked disadvantage in timed test situations. Clocks and watches have been characterized as 'middle class gods.' For children from the culture of poverty the concept of the 'slow gifted' (Reissman, 1962) is tenable from the results of the present evaluation.

20. Typically use a great many words with fair precision, but not those words representative of the school culture. The child who says, 'I'm going to 'carry' him home,' is using a term alien to the school establishment but well founded in such well known songs as 'Carry Me Back to Old Virginny,' and the song line, 'I looked over Jordan and what did I see, comin' for to carry me home.' The role of the teacher is to explain alternative ways of saying things rather than one of rejection of the alien terminology.*

While all of Metfessel's conclusions have a direct relationship to the creative problem solving limitation of children, several bear further scrutiny in terms of the kinds of classroom practices which would appear to have benefit for perpetuating creative thinking skills for school children. Conclusion number three refers to the notion of language development. This research conclusion indicates that poverty youth have difficulty relating the names of objects to the actual object. Sometimes this is due to the unique characteristics of poverty homes. Some tend to be more non-verbal than those of middle class homes. Often, poverty parents must spend so much time and energy trying merely to feed and clothe their families that little attention can be shown to the youngsters and their verbal skill development. Hence, many such children have very poor verbal skills which limits verbal fluency, one of Metfessel's Twenty-Six Correlates of Creative Thinking.**

Children lacking these skills must be subjected to a variety of classroom activities designed to increase their basic vocabularies. Opportunities must be provided for children to learn names of objects. Children could, for example, list all the objects they can think of that are red, rough, smooth, long, short, edible, heavy, etc. Brainstorming activities give youngsters the opportunity to commence increasing their fluency potential. Thinking of as many ways as possible for shining a pair of shoes, traveling from Los Angeles to New York, fixing a rocket ship, etc., are sample activities which will assist in the development of fluency skills.

The fact that many poverty homes frequently ask or answer questions (conclusion number four) also seriously limits vocabulary development and concept formation. When families are concerned with the qcquisition of the basic necessities, there is often precious little time left for such activities. Thus, children from such families need work dealing with word synonyms, the use of analogies, invention of new words to describe feelings or events, and the writing of simple sentences. In addition, students need lots of opportunities to play with words in order to develop a better vocabulary and grow more comfortable in general word usage.

The lack of fantasy play in the lives of poverty children (conclusion number six) is certainly one of the most serious detriments to creativity. A very common role of the middle class parent is to participate with the child in fantasy games. When a young child from a middle class family comes into the house and says, "Mom, there's a giant lion playing in our back yard," Mom will usually create a play atmosphere with the child, responding with something like, "Oh, how nice. Let's invite him in for lunch!" When the poverty child says this, the parent is likely to reward this bit of fantasy with a swat and an admonishment which sounds something like, "Don't lie to me ever again!" Consequently, the poverty youngster grows up all too often with inadequate verbal originality skills. The teacher should read fantasy stories

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* Newton Metfessel, "Conclusion from Previous Research Findings Which Were Validated by the Research and Evaluation Conducted by the Staff of Project Potential" (Los Angeles: University of Southern California, 1965), Mimeographed.

**Newton Metfessel, "Twenty-Six Correlates of Creative Thinking" (Los Angeles: University of Southern California, 1965), Mimeographed.

and encourage the student to tell his own fantasy stories to someone else or into the tape recorder. Original ideas and acts should be rewarded. Drama, puppetry, and role playing constitute excellent activities for developing originality skills.

Conclusion number eleven pertains to the lack of objects in many homes of the poverty culture. Consequently, children often come to school not really knowing the names of many basic objects. Poverty families, in addition to not having money for purchasing many of the items commonly found in middle-class homes, often are unable to spend adequate time with their youngsters in object identification. While middle-class parents commonly spend much time with their children in these activities ("Now Johnnie, what is this?"), the poverty home is often too heavily occupied with finding food, jobs, etc., to have the stamina for such activities. Therefore, in order to meet these needs, teachers need to become pack-rats in order to collect as much realia as they can for the room. This provides teachers and children with not only a lot of motivational devices but also vehicles for developing an increase in vocabulary skills which are so crucial in developing fluency skills. The room should look like a museum. Depending on the children's age, items can be marked in order to familiarize students with the names (symbol of objects) as quickly as possible.

This lack of objects in the home also tends to limit the development of a sharp curiosity. Classroom activities must be designed to stimulate an inquisitive perspective toward the environment. The pupil must learn to make use of the information possessed. Lots of "why" questions need to be asked and children must be surrounded by objects to arouse the curiosity. "What would happen if" discussion questions should be utilized. Unusual-uses questions can be asked about unconventional ways of using items such as cardboard boxes, bricks, cans, etc.

SUMMARY

The Metfessel study points out many conditions of poverty relative to creative problem solving skills. These students often possess serious handicaps which drastically inhibit the creative potential. Youth need more opportunities to develop their vocabulary. Fantasy games help develop originality. Rooms should be interesting places which stimulate the student's curiosity. Activities must be utilized in order to increase the vocabulary levels of poverty children.

Even though our schools have more topics than can be adequately dealt with, it is becoming increasingly important to deal with the development of creativity. The uncertainty of tomorrow's world would certainly dictate to educators the critical urgency of developing creativity skills in all our citizens. . . if our civilization is to survive somehow.

THE GIFTED AND THE DISADVANTAGED*

by A. Harry Passow**

More than 15 years have elapsed since the inception of what has been called the "third wave of interest in the gifted." Fewer than a half dozen years have passed since such terms as ***disadvantaged*** and ***deprived*** were added to the educational lexicon. For some persons, the two populations – both lacking uniform, widely accepted definition – represent opposite ends of a continuum of talent potential. For others, both groups represent different aspects of the same problem of talent development. Certainly, one stimulus for the present concern for the education of the disadvantaged is the firm belief that children from low-income, ethnic, and racial minority groups represent the nation's largest unmined source of talent. Aside from the humanitarian aspects of overcoming poverty and discrimination, aside from the moral values in providing equal opportunity for all, the nation's welfare and survival depend on its success in identifying and nurturing talents of many kinds wherever they may be found.

Schemes for encouraging talent development among the disadvantaged tend to follow many of the patterns employed by planners of programs for the gifted a few years ago and, as might be expected, even commit some of the same errors. Many of the issues raised regarding programs for the gifted are now paraphrased to apply to plans for the disadvantaged. Ironically, concern for the disadvantaged has triggered opposition to what had become established and accepted practices for the gifted. Most notably, special provisions for the gifted and particularly special groupings have become a prime target for attack on the basis of alleged "discrimination against the disadvantaged." Identification procedures, especially those involving standardized intelligence tests, have been condemned as being discriminatory against the poor and culturally different.

Stripped of polemics, the hard-nut question is basically one of how to provide for the wide range of individual differences found in any school population. Having known for some time that identical experiences are not the same as equal opportunities, educational program planners continue to be concerned with the problems of individualization and differentiation of instruction. With respect to both the gifted and the disadvantaged, the prennial questions persist: What sorts of education will best educate? What constitutes adequate and appropriate education for all?

In a position paper prepared for the 1960 White House Conference on Children and Youth, seven problem areas in the education of the gifted and talented were identified as most pressing:

1. Improvements of means for measuring the multidimensions of high level ability, thus sharpening the identification of the talented.
2. Improvement of procedures for locating the potential underachiever at an early stage to prevent negative attitudes, learning patterns, and self-concepts from forming and choking his capabilities.
3. Recruitment, education, and retention of talented individuals in the teaching profession – in instruction, counseling, supervisory, and administrative positions.

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4. Development of means for keeping abreast of new knowledge and revision of instruction to include these new insights and understandings.
5. Development and appraisal of instructional techniques, materials, and resources that will yield deeper learnings for the gifted.
6. Development of means for measuring deeper learnings that are untapped by the conventional achievement tests of today.
7. Increased understanding of the kinds of learning experiences that will nourish a love of learning; foster independence in thinking; feed the desire to experiment, to test, and to venture forth; and create a built-in standard of excellence in performance.

Miriam Goldberg's paper on the gifted, delivered at the 1965 White House Conference on Education, examined several issues that she felt needed clarification, since "the directions in which they are resolved may well determine the future of special provisions for the talented." The issues were listed under such headings as: The Climate for Talent Development, Current Oppositions to Special Programs, Expanded Conceptions of Talent, Increasing the Talent Pool – Womanpower and the Disadvantaged, and Administrative Arrangements for the Talented.

These five issues paralleled those identified five years earlier, even though programs for the gifted mushroomed throughout the country in the intervening years – spurred in part by Sputnik. To the 1960 conference, the major needs seemed to be for research and experimentation "to understand better the phenomenon of giftedness and its development, to assess the value of specific educational procedures and practices, to appraise proposals and plans, and to use available resources more effectively." These continue to be major needs in the area of the gifted, although there are now available research findings and operational experience that might be synthesized, interpreted, and applied to improved program planning. However, such issues as racial isolation, student power, and community control were hardly considered at a time when most research on ability grouping, for instance, did not consider race or social class as significant variables.

Many innovations that were sharply debated a decade ago – even the need for special provisions for the gifted – have now become more or less institutionalized. A concern with nurturing creativity, productive thinking, and inquiry has become more focused as enthusiasm for novelty alone has been replaced with more tempered insights into the nature of these phenomena. True, there is still no adequate theory of talent development that might provide a framework for program planning, nor are we yet able to adequately define what constitutes "enrichment for the gifted." We have expanded our notions of giftedness and its multi-faceted nature so that new assessment procedures have been developed to supplement or, in some instances, replace traditional techniques. Much of the so-called curriculum revolution, while not necessarily aimed at the intellectually gifted student, has since been found to be most appropriate for this population since such programs deal with content and processes calling for the higher abstractions and conceptual abilities that are components of giftedness. Significant as such curricular changes have been, they tend not to contribute to integrated, articulated, sequential programs for the gifted, except in those few instances where some attempts have been made to attain such an end.

There have been curricular changes during the past decade that have opened alternatives for the gifted. Some of these can be described as ***vertical,*** moving courses or units down so that students have contact with material at an earlier age or in less time than is normal; some are ***horizontal*** changes, providing for greater depth and breadth than is usual; some are ***reorganizational,*** redesigning the curriculum content itself; and some may be called ***augmentation,***

introducing experiences that have not been part of the curriculum earlier. Seminars on standard and esoteric subjects have become part of school programs. Independent study has flourished. Extended school weeks and years have been provided for the gifted. Secondary schools and colleges have shared programs and resources, including staff. The Advanced Placement Program, featuring college-level work in high schools, has involved thousands of students in hundreds of schools. The National Merit Scholarship Program, with its related projects, has become part of an annual nationwide talent search. Early admissions to college have become standard across the nation.

Thus, in the area of the gifted and the talented, "new" and "promising" developments appear to be consolidations of what has been learned from the research and experience of the past dozen or so years. For example, there was a period during which the gifted underachiever was the target of much study, a great deal of research being supported by federal and state funds. The findings of such studies shed light on the relationships between motivational and personality variables, environmental conditions, and the instructional program as these factors affected the development of intellectual potential. However, our progress in moving from analysis and diagnosis to intervention and program has been painfully slow. We have, consequently, applied little of this research to the broader concerns with achievement, especially for the disadvantaged, probably because the populations studied have tended to be primarily the middle-class gifted.

Efforts to identify and nurture "creativity" provided considerable excitement and intense effort for a period, but the crest of that commitment passed quickly. We still do not understand the nature and causes of the so-called morning glories (individuals whose giftedness appears early but soon wanes or disappears) or the late bloomers (persons whose talents emerge somewhat late) or how these phenomena should influence identification or instructional and counseling procedures. We still profess concern for developing nonacademic talents (such as musical, artistic, mechanical, social, and dramatic), but we have given relatively scant attention to what kinds of provisions are appropriate and essential. The problems of adequate programs for highly gifted individuals — those with unusually rare genius — have been generally ignored on the tacit assumption that such talent will eventually come out anyway. Finally, we have hardly tackled, let alone resolved, the many issues regarding development of talent in its social context.

The problem of talent development continues to be one of devising educational opportunities that will unlock potential of all kinds to the fullest, programs that will be concerned with values, attitudes, self-concepts, and commitment to continued growth, not just the acquisition of knowledge and intellectual development. The research and development efforts of the late fifties and early sixties — many of them encouraged and supported by federal and state governments — helped broaden definitions of talent and helped us to understand that giftedness is multifaceted. Expanded notions of giftedness and its many-faceted nature suggest that, as David McClelland once observed, "talent potential may be fairly widespread, a characteristic which can be transformed into actually talented performance by various sorts of the right kinds of education." The drive for "quality education" and for "equal educational opportunity" represent, in some ways, a press to test the hypothesis. As students from impoverished backgrounds and from racial and ethnic minorities have "achieved" when provided with appropriate educational opportunities, they have demonstrated that "the right kinds of education" can indeed transform potential into "actually talented performance."*

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*McClelland, David C., and others, editors. ***Talent and Society.*** New York: Van Nostrand Reinhold Co., 1958.

The disappearance from the educational scene of some programs for the gifted, however, indicates our continued tendency to discard the baby with the bathwater. No program or provision for the gifted is so sacred that continuous assessment and evaluation is no longer needed. And, as education programs become inevitably intertwined with social and political processes within the school and the community at large, such educational processes must be continually examined in terms of overall effects.

Ability grouping, for example, was viewed, along with acceleration and enrichment, as "a means of providing for the gifted." All three terms took on a variety of forms, of course, in different contexts and at different levels. When ability grouping in certain school situations led to a tracking system that segregated white, middle-class students from poor, nonwhite students, leading the former into college bound programs and the latter into dead-end terminal programs, clearly such provisions no longer contributed to full talent development. In abandoning grouping provisions, all too often schools failed to provide for curriculum differentiation, for appropriate teaching and learning strategies, for instructional resources – for all of the kinds of educational opportunities that grouping was originally intended to facilitate. Consequently, the gifted – white and non-white, middle and lower class – were deprived of appropriate educational opportunities.

The needs of gifted and talented children are, in a sense, the same as those of other children, differing in degree and quality. All children "need" opportunities to develop their individual talents, and the gifted and talented students are no exception. Such talented individuals come from all races, socioeconomic groups, geographic locales, and environments. To the extend that educational programs discriminate, sort out, and stifle talent development, they cannot be tolerated, no matter what political power is brought to maintain them.

The recently published report of the U.S. Office of Education survey of programs and provisions for the gifted (pursuant to Public Law 91-230, Section 806) uses language reminiscent of the 1950's, such as "the widespread neglect of gifted and talented children." In the sense of the school's inability or unwillingness to provide for the particular needs of the gifted, this neglect is even more intense and widespread among the disadvantaged and minority groups. These students are caught in a vortex of educational and environmental forces that mitigate against their being identified and having their talents nurtured.

In schools that are ***de facto*** segregated (as are many inner-city schools), where low achievement is widespread, teachers and administrators have low expectations, the curriculum is sterile and irrelevant, resources are limited, and individual diagnosis absent, the potentially gifted child may very likely be lost. Differing school milieus and predominant value systems affect general scholastic performance and individual attainment. Giftedness and talent always have a social referrent – those abilities that are identified and developed are those that are valued by the society – and the child in a depressed area who is potentially gifted may be doubly disadvantaged, for he lives in an environment that may be hostile or apathetic to his particular abilities. In some instances, outstanding scholastic achievement is perceived as "The Man's Game" and not to be pursued by the poor and the nonwhite lest they be coopted.

In schools where desegregation has taken place, integration may not have occurred, and the minority group students are often a minority. The schools from which they have come are frequently perceived as inferior, the levels of past performance lower, and potentials for outstanding performance limited. All too often the result has been a resegregation through grouping and tracking procedures that relegate the blacks, the poor, and the non-English speaking to the "slower" or "nonacademic" programs, where they are provided with an education that is basically inferior in quality. Since such procedures tend to be "class actions," in that all members of the minority group are treated as if homogeneity existed, the gifted

and the talented among them are particularly vulnerable and suffer as a result of such discrimination. Furthermore, the social conditions in the classroom and the school, the nature of acceptance or rejection and the minority group student's perception of these interactions, the peer values – all affect the pupil's achievement motivation and the extent to which he will manifest and develop his giftedness. When students are black, red, or brown, are different culturally from the majority group, are non-English speaking or have "non-standard" dialects, those who are gifted or talented among them may be particularly disadvantaged because of discriminatory practices.

The gifted and talented among disadvantaged and minority groups pose a particular challenge and opportunity for educators. To begin to meet this challenge, educators must examine their own expectations regarding this untapped talent pool: To what extent have the biases of educators contributed to the limited development of gifted minority group youth? The fact that some unusually gifted Blacks or Chicanos or Puerto Ricans have emerged and demonstrated outstanding ability does not change the urgent need for planners and researchers to attend to the special problems within this more general area of concern. More specifically, attention will have to be given to the following dimensions of the problem:

Identification. Procedures used to locate gifted and talented individuals, given all the problems that exist with the population in general, are even more problematic in identifying the gifted among the disadvantaged. Some educators have argued for discarding existing instruments and procedures and developing "culture fair" tests. Others, questioning the possibilities of such bias-free instruments and techniques, propose that the focus be on the interpretation of the data so as to take into account the disadvantaged background of the child. Still others urge that efforts emphasize the creation of settings that will encourage self-identification of the gifted through outstanding performance. Identification procedures that stress a search for talent rather than simply screen out and bar participation in programs for the gifted are crucial for minority group youth. As a start, such procedures should be more, rather than less, inclusive.

Development of programs. Experience of the past several decades has clearly indicated the need for differentiated opportunities for the gifted to develop their special abilities while, at the same time, they are given opportunities to develop certain general skills and abilities by interacting with students of less and greater potential. No single uniform program has emerged. However, educators need to turn their attention to the special problems of program development in educational and social settings where the disadvantaged are found. To recognize the nature of such problems would be a step forward at this point. The success of some mini- and prep schools in ghetto areas suggests one approach worth further exploration. By attending to the affective as well as cognitive development of students and by creating a climate for achievement, such schools seem to be providing another chance for able pupils who have been missed or turned off by the more traditional programs. Programs that provide opportunities for students to teach fellow pupils or for service in various community agencies can extend the possibilities for developing potentials. Education is not limited to the place we call school. Support is needed for encouragement of various opportunities for talent development in nonconventional settings, involving nontraditional personnel.

Development of staff. By creating the conditions for learning and by serving as the gatekeepers for programs and services, school staffs are critical in talent development. Staff development is needed in terms of altering expectations with respect to the identification and nurturing of talent among the disadvantaged. Coupled with attitudinal changes must come new teaching strategies and ways of using learning resources, in school and community.

Enrichment of the learning environment. For a variety of reasons, inner-city schools may be able to provide only limited resources for talent development. However, they are situated in urban centers, and the resources for learning are extremely rich. The entire community, not the classroom alone, must become the locus for learning. Not only will this extend opportunities for learning but it could, at the same time, alter the climate for learning — the attitudes toward unusual talents and their development.

Development of strategies for bilingual and multicultural education. The barriers to optimum development of the gifted among minority group students may include both the fact that the language of instruction differs from the child's mother tongue and the existence of discontinuities between the culture of the school and that of the home and neighborhood. If talent potential is to be realized, better strategies must be found for recognizing language needs and the potential richness of cultural differences.

Development of appropriate guidance and other ancillary services. In addition to the special guidance needs — personal and educational — of all gifted students, there are particular problems that may be encountered by the gifted minority group student. These may range from help with affective matters, such as peer and family attitudes toward the gifted child's "difference," to assistance in recognizing and selecting from the options available to him. Higher education opportunities, for example, have been expanded considerably in the last decade or so, and the gifted minority group student and his family may not be fully aware of the possibilities or the means for taking advantage of them.

Development of financial resources. Poor and minority group students need financial assistance to be able to develop their special abilities. While there has been increased support for minority group youth in the realm of higher education scholarships and stipends, it has not been sufficient. By continuing to study, the poor child is unable to contribute to support of the family in any way, aside from answering his own intellectual needs. What is required are expanded opportunities to serve and to work as a means of earning some income, which will have a beneficial effect on both the talented individual and his family.

There is ample evidence that schools have failed to come to grips with the problems of identifying and developing giftedness and talent among various racial and ethnic minorities and children of the poor. When federal and state agencies, through appropriations for research and program development, encouraged an enlargement of opportunities for the gifted, there was a renaissance of interest and activity. The minority group gifted profited from that revived concern, but only to a limited extent.

In recent years, many school systems have misinterpreted the long overdue concern for the education of poor and minority group students as meaning that programs for the disadvantaged must take precedence over provisions for the gifted. What is needed now is a clear affirmation by educators and communities that they are concerned with the development of talent potential of all kinds, wherever such special abilities may be found. The issue is not one of providing for the gifted (meaning only white, middle-class, suburban children) or the disadvantaged (meaning only poor, nonwhite, ghetto dwellers). Gifted and talented individuals are found in all groups. There is no need or justification for depriving some students of opportunities at the expense of others. Nor is there any basis for not providing the disadvantaged gifted student with special opportunities that are essentially compensatory in nature.

What is needed is a real commitment to developing the total range of abilities and talents — including the unusually able and gifted. Such commitment would be manifested in the kinds of programs funded, the areas of research and development supported, the varieties of

training programs underwritten, and so on. Unfortunately, too many educators and lay persons are unwilling to concede that there really are individual differences, that such differences should help determine the nature of appropriate education that must be provided, and that identical experiences do not make for equal opportunities. Certainly, in the last two decades we have acquired sufficient research data and program development experience to be able to provide the kinds of flexibility, openness, personnel, and material support to nurture individual talents more effectively than we are presently doing.

Talent is not the prerogative of any racial or ethnic group, any social class, or any residential area. It may lie untapped in some situations under some conditions, but no population has either a monopoly on or an absence of talents. Nor will depriving the gifted and talented pupil of opportunities to develop and use his gifts result in upgrading the attainments of his less able peers. Such misguided and meaningless egalitarianism contributes to the development of no one in particular. Obviously, with broadened insights into the nature of giftedness, some traditional identification procedures, college preparatory programs, and rewards systems are no longer valid. With the years of research and experience now behind us, we should certainly interpret relevance, appropriateness, and meaning differently; we should view educational opportunities and engagement differently, based on modified values; and we should be more sensitive to the sociopolitical context in which learning takes place and programs function.

It was the civil rights movement and the war on poverty that underscored the failure of our schools to provide adequate educational opportunities for large numbers of our poor and disadvantaged groups. The U.S. Commissioner of Education has announced that he will become a "visible advocate for increased attention" to the gifted and talented. All educators must become advocates for increased, appropriate attention to the gifted, especially those among the disadvantaged and minorities, where discrimination and neglect have resulted in an even greater loss of talent development.

Title VI of the Civil Rights Act of 1964 states:

"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, or denied the benefit of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Therefore, EPDA programs must be operated in compliance with this law.